10 Years of Transformational Change

Defense AT&L interviews

Frank Anderson

President, Defense Acquisition University
Director, Human Capital Initiatives

ALSO

Determining Your Organization's Health

Joint Contingency Contracting

A Call for Action

ABCS—Not Business as Usual

Acquisition Training— A Lifelong Process

A Systems Engineering Approach to Managing Technical Data

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DEPARTMENTS

Ten Years of Transformational Change

Frank Anderson

President, Defense Acquisition University

Director, Human Capital Initiatives

Frank Anderson has been a catalyst for change and transformation in two key roles: president, Defense Acquisition University (DAU) and director, AT&L Human Capital Initiatives (HCI). As president of DAU, he strategically aligned his organization to successfully deliver significant growth in capacity and continuous performance improvements. As director, HCI, he worked closely with Department of Defense components to expand the defense acquisition workforce to support the growth strategy of the secretary of defense and to enhance training, development, and retention of the workforce.

Under Anderson's direction, DAU greatly expanded the availability of acquisition learning assets for the acquisition community. In fiscal year 2009, DAU increased course graduates to 195,000 (up from 154,000 in fiscal year 2008—an increase of 19 percent). In addition, over 493,000 students completed DAU's continuous learning modules in fiscal year 2009 (an increase of 48 percent). Total learning assets provided to the workforce increased by over 2 million hours (from 7.6 million in fiscal year 2008 to 9.7 million in fiscal year 2009—an increase of 28 percent). In FY10, DAU is projected to surpass all of its FY09 achievements (which were the highest in its history). In addition, DAU led the industry in the development of advanced learning technologies by testing cutting-edge software related to DAU course development and delivery; and virtual world environments, such as DAU Nexus, to provide global reach; and by piloting multimedia gaming and simulations and other emerging technologies, such as TelePresence. In addition, the Defense Acquisition Portal was deployed and significantly improved enterprise knowledge sharing on a massive scale. One month after implementation, the site received over 12 million hits and has continued to average over 18 million per month. The state-of-the-art single gateway provides acquisition information and recommended best practices, creating an anytime, anywhere 24/7 learning environment.

After 10 dynamic years of innovation and transformation, Frank Anderson has retired as president of the Defense Acquisition University and as director, HCI. Anderson spoke to *Defense AT&L* before his retirement and reflected on some of his achievements and his hopes for the future.

Q

Can you begin by providing an overview of your roles and responsibilities as DAU president and director of Human Capital Initiatives? Can you talk about the importance of both roles and how you interface with senior DoD leadership?

A

As president of the Defense Acquisition University, I believe I am the inside DAU representative of the senior leadership team and the functional leaders who depend on DAU to deliver learning assets to the acquisition workforce—a community that numbered about 133,000 people at the end of fiscal year 2009. We are a growing community. I also spend a lot of time focusing on the strategic direction of DAU. We are blessed with a very strong leadership team. My challenges are ensuring that I stay connected with the defense leadership team and that we have DAU focus on things that represent value to the people who are out doing the acquisition work—that we create and build and

sustain a world-class learning environment for the members of the defense acquisition team who execute the acquisition mission every day.

Q

You became president of the Defense Acquisition University on Oct. 31, 2000. During your 10 years as leader of the DoD corporate university for acquisition professionals, what major changes has DAU undertaken?

A

First, we have become very customer- and workforce-centric. We are driven by what we perceive as the needs and desires of the acquisition workforce. We have functional integrated product teams that develop the learning outcomes they want for their members of the acquisition workforce. We then take those learning outcomes and turn them into training that is delivered. We are very good at connecting back to the workforce.

We changed the organizational structure of DAU by moving from the central location here at Fort Belvoir, Va., to major regional locations: the West Region, the South Region, the Mid-Atlantic Region, the Midwest Region, and the Capital and Northeast Region. The strategic relocation of our major teaching centers to those locations where we have large centers of acquisition workforce members was a major change in how we are organized and how we deliver training.

When I first came to the university, approximately 33 percent of the DAU budget went to travel and per diem expenses. Today that is about 17 percent. In fact, what we did

> **We have gone from producing about 33,000 graduates annually through the DAU certification program to last year producing approximately 195,000 grads.**

was unique in that we self-funded our transformation, and we did that with two overarching strategies. First, we relocated the campus structure so that we reduced the need for travel for resident training. Second, we performed a strategic review of our curriculum and our curriculum development process to build the right balance between the content that would be delivered through resident courses and the content that we would deliver across the Web—creating a blended learning environment. Those were the two predominant drivers that allowed us to reduce the overall costs of travel and per diem. Because of the support and top cover we received from our senior leadership team, we were allowed to reuse savings and reinvest in learning products and services for the acquisition community.

I think the other big initiative is that we are very selective about the faculty and our senior leaders. They are true professionals and acquisition practitioners. The single highest-rated item at DAU—and we measure almost everything—is the faculty member in the classroom. Our focus on the quality of the DAU faculty and the DAU team puts the university in a position where several faculty members have come to DAU, taught for several years, and then have been selected to fill key leadership positions in the Pentagon and other federal agencies. I am very proud of the outstanding caliber of the DAU team, the DAU staff, and the fact that the staff is being recognized throughout the DoD community and the corporate learning sector.

Q

DAU is currently undergoing what's being called its second transformation. Can you talk about some of the elements of the transformation? Where is this transformation leading DAU? How is the university emphasizing learning at the point of need?

A

The second transformation is simple and straightforward: How do we become better connected to the workforce so that we can deliver learning assets at the individual's learning point of need. The schoolhouse will never be good enough alone—no schoolhouse is. You can never schedule a resident course so that it is convenient for every individual. What we are trying to do now is to capture all of our learning assets and make them available to the workforce so that they can get to those learning assets when they need them.

Let me expand on that a little bit. A world-class corporate university has a great e-learning infrastructure, and it also delivers great resident courses. We are linking our e-presence and our resident presence in a way that all of our learning resources are available to the acquisition workforce at their convenience. If a workforce member has gone through a course, resident or e-learning, it may have been a while since he or she has been called on to use the competencies learned, but because of a mission requirement, he or she needs an operational understanding of the subject now. There's no time to wait for a class that will be taught a month from now, or to get scheduled for a course, or to get TDY

funding—the workforce member needs to connect to that learning asset immediately, even if it is a weekend. The e-presence linkage enables that person to connect to information and use it on the job at the learning point of need.

We are also connecting policies and procedures. We are linking e-learning and resident training material (a kind of "open university" construct), and we have a very robust, enterprise-wide knowledge-sharing system, including many communities of practice that people can connect to when they have a need. It is the totality of these resources for members of the acquisition workforce to access at will that we believe will keep DAU on the leading edge of transformation learning assets.

Q

DAU's mission is to support a mission-ready defense acquisition workforce that develops, delivers, and sustains effective and affordable warfighting capabilities. Can you discuss ways that DAU is meeting that mission?

A

The second transformation is a continuation of the foundation that is in place today. It is accepting the belief that there is no "there." Many people who look at the accomplishments, the achievements, and the progress we've made today might say, "Well, we've done great. We're there." But the business world and the challenges of the acquisition workforce don't stay in one place. We have to move with the pace of business to ensure that we're prepared to support the mission of the acquisition workforce and the acquisition community. And, of course, we also have our critics and we accept criticism from all sources as we try to continuously improve our products and services.

We're trying to improve the courses that the community has indicated they want and need. We are developing new programs, such as the Basic Contracting course, the CON 90 course, that in and of itself is a transformational course. What we are doing is preparing contracting employees through a deep immersion course to think critically and to become the knowledge workers that people have talked about for several years. While this course is a resident course, students operate from their computers every day in class. They do research, they connect to policies and procedures on our websites, and they learn how to connect to other learning resources. When they return to the workplace, they become a part of the transformation of how DoD will completed in their workplaces. This is a four-week deep immersion course in the fundamentals of contracting. Students leave with a very deep knowledge and understanding of the basics of contracting.

What we see is a mutually enriching environment where newer employees coming into the workplace will be mentoring their superiors in terms of the availability of information and learning resources, and the more senior employees will be mentoring the newer employees with their corporate

knowledge of how to do things and what the policies and procedures mean.

As I leave, I have a certain remorse and sadness that I will not be able to continue to participate and share in everything that is ongoing, but I am really excited about what I believe is going to be the state of training over the next three to five years and the products and services that DAU will be able to deliver to the community.

Q

DAU developed the Performance Learning Model to provide a visual representation of the training and additional learning assets the university provides. Can you give an overview of the Performance Learning Model and how it has evolved over the years?

A

When I came to the university, we were only one dimension. We delivered resident classroom courses and trained around 33,000 people a year. We started to look at what DAU really does for the community and how we should be organized and shaped to perform our mission. We concluded that DAU was in the knowledge-sharing business. We knew that we should be making resources and the intellectual capital of the department broadly available to the community, and while we delivered training in the classroom, we had a gap.

We started to look at how we get at those two dimensions, and then as we thought about it, we asked ourselves how to make contact with the community? We believed that there were things we needed to do with the acquisition workforce whereby we would serve the community through group activity resident courses, conferences, and seminars; and then there was the connectivity we needed with individuals through the Web presence, where an individual who needed a resource and didn't have time to get into a course could reach out and draw on the intellectual capital properties of the department because he or she needed a specific bit of information and needed it now. It was through trying to understand how we could connect with the workforce and what our business truly was that we came up with the Performance Learning Model (PLM).

The construct was to build a learning architecture that would allow a

member of the acquisition workforce to be connected with the university 24 hours a day, seven days a week. And even when workforce members were not at DAU participating in a course, they would have the capability to reach back and review things discussed in a classroom, to reach back through the university to touch others they might need for special projects. That was how the Performance Learning Model evolved over time with the thoughtful work of a lot of really smart people.

The Performance Learning Model is how we have organized all of our learning resources. Think about communities of practice—they didn't exist when I came here. Look at the idea of performance support, the way we have organized, and it is all tied to the organization. Moving the physical structure of DAU allowed us to connect with program teams and actively participate in helping the acquisition workforce solve real problems. The e-presence and the Continuous Learning Center started in 2001. That first year, we had about 5,000 people participate; this year, we had almost 500,000 participate. And that has grown by word of mouth, where people in the field were saying, "Hey, do you know
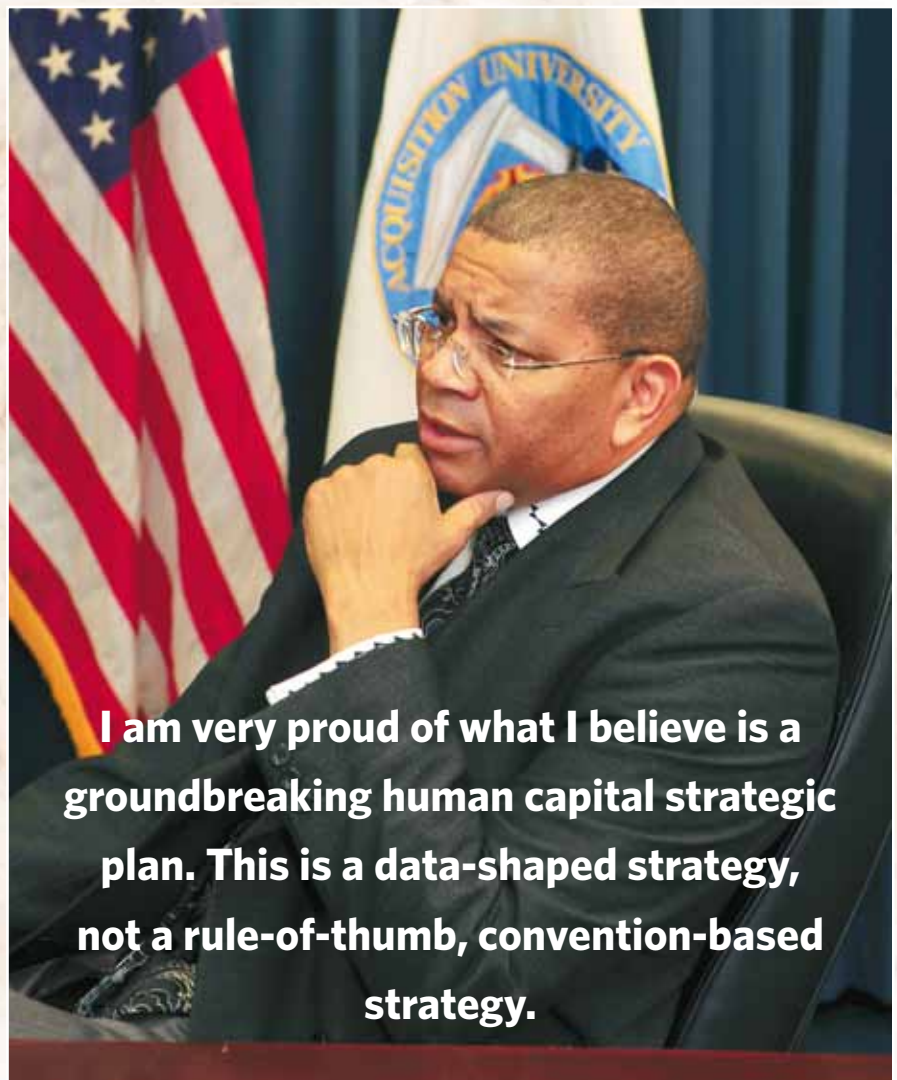
> **I am very proud of what I believe is a groundbreaking human capital strategic plan. This is a data-shaped strategy, not a rule-of-thumb, convention-based strategy.**

that these resources are available." We now have over one million users on our on-line student accounts. And these are assets that were not available just a few years ago. Technology has increasingly accelerated our ability to provide what and when they need it anywhere and anytime.

The important thing to recognize when you look at the growth is that we have gone from producing about 33,000 graduates annually through the DAU certification program to last year producing approximately 195,000 grads. Phenomenal growth! But through 2006, we had no increase in budget. Because of the Secretary of Defense Acquisition Workforce Improvement Program that was announced April 6, the community is allocating more resources to DAU. We are on a path of growth right now. We are creating more classrooms because the community wanted more resident training; we are expanding our e-presence and improving the quality, content, and interactivity of our Web-based courses. I am excited about what the university will do in the future.

I have had a great 10-year run. I've enjoyed every day, the people that I've worked with, the challenges that we've dealt with, and I am just as excited about what the university will be doing in the future. I think we are in a great place. We have an outstanding team in the university today—so in many ways, I am envious of whoever is selected to replace me. And I want to make a plug for both Dr. Ashton Carter [*under secretary of defense for Acquisition, Technology and Logistics*] and Frank Kendall [*principal deputy under secretary of defense for Acquisition and Technology*]. They have both been very strong advocates for the acquisition workforce and fantastic supporters. We are blessed to have two excellent leaders who have clearly communicated their efforts and support for the workforce, and for the university. That is very encouraging, and I am convinced their leadership will be an integral part of the continued growth of DAU.

Q
You also are director of Human Capital Initiatives for the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics. What priorities have you focused upon as director, HCI?
A
Director of Human Capital Initiatives is a role that I started in 2006, and it has been very exciting to help shape the Department's human capital strategic plan and human capital strategy for the acquisition workforce.

The human capital strategic plan for the acquisition workforce has been completed and sent to the Hill. I am very excited about that. It was one of the major milestones I wanted to complete before my retirement. This strategy, we believe, is going to be a game changer. This has been a very complex program to work; it involves all of the components and defense agencies that are responsible for leading and developing their acquisition workforces. We had great teaming and partnering with the comptroller community, with the human

resource community, as we literally worked all elements of the Department in shaping this program.

There is no doubt that without the very strong leadership of Secretary of Defense Robert Gates, who is committed to making major investments in the acquisition workforce, we would not be where we are today. Dr. Carter has taken on a very active leadership role. He has reinstituted the Acquisition Workforce Senior Steering Board. This board involves all of the senior acquisition executives; all of the Office of the Secretary of Defense functional leaders for program management, contracting, engineering, cost estimating, the IT community—all are in the room at the same time as we go through and look at the status of the initiatives that we have.

Senior leadership is actively involved and engaged in shaping the future of the acquisition workforce. One of the controversial issues was insourcing [*moving positions from contractor-controlled to government-controlled*]. There have been a lot of negative comments along these lines: "Well, that wasn't strategic. You guys rushed into it. You're chasing numbers." Nothing could be further from the truth. All the Services were actively engaged in shaping their particular community and deciding how they wanted to reshape their workforce for the future. We had priorities. The Department wanted to improve its oversight capability, to improve pricing capability within the department, and to build up our contracting workforce. We wanted to strengthen our systems engineering capability within the Department, as well as program management.

The Services, who are responsible for their force planning, did an outstanding job of trying to understand the right configuration for their workforce as they move to the future to ensure that they can manage the work that they believe they will be responsible for. They were actively involved, and I think they did an outstanding job.

Again, I credit Dr. Carter and the reestablishment of the Acquisition Workforce Senior Steering Board. It gets everyone together, and all the initiatives are reviewed by the senior leadership. I think that since I have been in the people business over the last 10 years, this has been the most strategic initiative that we have worked. There are improvements that will be made to acquisition workforce training, work that we are doing to build a stronger technical/engineering capability, rework of courses and logistics, and the strengthening and improvement of our Web presence. We are creating the Living Library where we are starting to record acquisition experts—people with strong backgrounds in acquisition—so that that their expertise will be caught and so people can capture the lessons learned and previous experience. We have created a very robust lessons learned capability that is available for the community.

When we consider the fact that the acquisition workforce is a very mature workforce, we are capturing that experience

so it will be available for the future workforce. How do we deal with the fact that we know we are going to lose members of the senior acquisition workforce—how do we capture that expertise so that it will still be available to the acquisition community and future workforce as lessons learned? The Living Library—all of these things are in place and we are starting to get usage out of it.

Q

As you look back on your 10 years at DAU, what are things that you believe are important attributes for a learning officer within the Department of Defense community?

A

I think it is important for a chief learning officer to connect to the community that he serves, and to connect to the business of mission objectives of the senior leadership team he supports. I think you need great people skills because you have to deal with various senior leaders throughout the acquisition community and the people who come to the campus. I think probably the most important thing is you need to bring a strong passion for working with people and a strong care for the mission. You need to come here really wanting to make a difference, and it is not just here at DAU—anyone who is wanting to be a chief learning officer needs to have a strong commitment to the mission and a strong desire to help people. I think it is important to have a pretty good sense of humor because at times, the job can be very tough. A sense of humor helps you to get through the hard points.

I think you need to care about people, especially your team. You need to be a team builder because for a learning enterprise as large as DAU, there are so many issues and challenges that you have to deal with at once. If you are uncomfortable handling multiple challenges at once—multitasking—the job can be very taxing. The building of relationships is very important. You have lots of people you have to deal with, but you also need to be loyal and understand the principles of alignment.

Learning organizations don't exist for themselves. They are established for one reason alone: the development of a specific segment of the workforce. You need to understand that mission, and you need to stay focused on the cus-

tomer. It is not about a schoolhouse, not about the learning organization; the focus must always be aligned and attuned with the workforce you support.

It is also important you develop an enterprise perspective. You can't have a narrow point of view. You must connect to the point of view of the leaders you represent. You've got to understand the mission objectives, and that means there are times you will need to compromise on things that you might believe are best for the community for the greater benefit of the enterprise. Ultimately, you exist to support employees who are depending on the schoolhouse to help them excel at their jobs and to stay aligned with the leadership team in terms of mission support.

Q

Is there anything in particular about your time at DAU that you think will be your greatest achievement or the item of which you are most proud?

A

There are just so many things I am proud of. I will start off by saying I love how DAU has come together as a team. We are truly a great team with lots of great players throughout the organization. I am very proud that we took on two really big missions. Being president of DAU and running DAU—that is clearly a big, important, full-time job. I am very proud of the fact that we were asked to do the human capital strategic plan, that senior leaders thought that we could bring the right strategic perspective and understanding of the acquisition workforce and the acquisition mission because of the work that we are doing with the university.

This has been a great journey, a great ride; and I travelled with absolutely fantastic people.
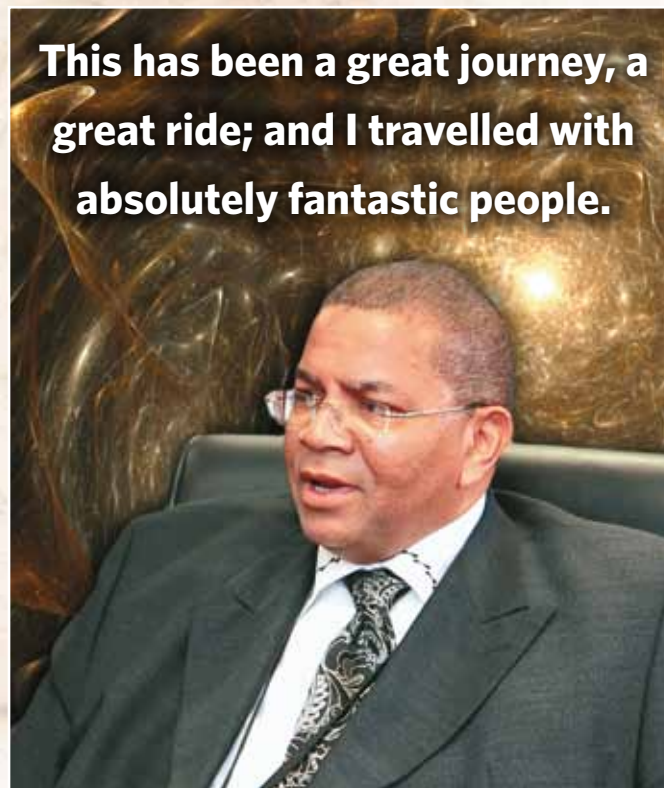
I am very proud of what I believe is a groundbreaking human capital strategic plan, as I mentioned earlier. This is a data-shaped strategy, not a rule-of-thumb, convention-based strategy. I think that we have a capability to analyze the workforce and an understanding and appreciation of the acquisition workforce that does not exist in any other place. It took a lot of hard work and a lot of great teammates to get us to where we are today.

A lot of good work is also going on in the components. It is not just about the human capital role, although I am very proud of what I think we accomplished during my time here. It is the state that I believe the ac-

quisition community is in, in terms of shaping a strategic view of where we should be taking the community. We are pulling together. Over time, we have had a number of disagreements, and we have worked through a lot of very hard and complex issues. I just feel very good about where we are in terms of our understanding and the strategy that is in place.

There is an old saying that once conventional wisdom congeals, facts and data don't seem to matter. We are changing that paradigm. Human capital strategy is data-driven. The leadership is engaged. They are reviewing information, and we are shaping decisions on the basis of that. I don't want to declare 100 percent success, but we do have the right foundation in place, we do have the right oversight structure, and we do have the right people engaged—so I feel very good about our state. We will obviously be better a year from now and significantly better two years from now, but the right foundation is in place for us to make monumental change in terms of how people management has occurred in the past.

I am excited about the leadership team that is in place here at DAU. It is the best team I've worked with. They are dynamic and they bring strong leadership talents to the playing field. Faculty are still the highest-rated resource in DAU; they have consistently stayed above the 6.5 scale on a 7-point scale, and that is hard to do over time. Our ongoing initiatives to upgrade and improve the quality of the course content are very exciting.

I'm proud of the awards that we have received from independent agencies and industrial agents. They clearly say that we are a sector leader. We've received awards from *Computerworld*; we've twice received *Chief Learning Officer* magazine's Chief Learning Officer of the Year award; our e-infrastructure has been recognized as best in the industry; and DAU has been selected as the best corporate university in America by almost every organization that makes those kinds of assessments. I've had the privilege to be part of a world-class team. My wish is that everyone in the university and the people that have worked with the acquisition workforce and on the human capital strategy all feel the same sense of pride that I do about the things that we have collectively achieved.

I feel extremely good when I am out traveling around the Department and I run into someone who says, "Sir, I've just taken a course and it was absolutely outstanding." That is probably the best compliment that I can get from anyone. That is positive confirmation from those who use our products and services that they are as good as we believe they are.

Now having said all that, we cannot become complacent. We have to continue to strive every day to be the best that we can be. What I like about this team is I believe that happens every day. I don't think the recognition that we have

> **The single highest-rated item at DAU—and we measure almost everything—is the faculty member in the classroom.**

received means luck; it is about hard work that really great people have put in.

Q
Is there anything else you'd like to add?
A
I have been in the Department of Defense for 44 years. I spent seven years enlisted before I was commissioned. I spent 27 years as an officer, and by the way, during the seven years I was enlisted, I was selected for tech sergeant before I was commissioned. I retired from the U.S. Air Force as a brigadier general. I was very proud of my service and the people I dealt with—I've been blessed during my enlisted time and as an officer. I was around great people, I had great leaders. I had people who mentored me along the way who, I believe, really cared about me and tried to make a difference; so I've attempted in every job I've had to live up to the standards of those who mentored me, shaped me, and provided unique opportunities for me to try to make a difference.

I believe you are blessed if you have a job you love going to every day, if you can work around people you enjoy being around, if you can do things that you believe are important and make a difference. When you look back, you can walk away believing that you really did make a difference. As you know, I love sports and sports analogies. I believe if you play the game and play it as hard as you can, and you walk away believing you've left everything on the playing field, you walk away with a sense of pride because you know you gave it your best. For those people I have worked with, I'd like to believe they feel that I gave my very best every day and I left it all on the playing field. This has been a great journey, a great ride; and I travelled with absolutely fantastic people.

Q
Mr. Anderson, thank you for your time.

8

Determining Your Organization's Health

Impact of Climate Surveys

Mike Kotzian ■ *Capt. Rick Muldoon, USN*
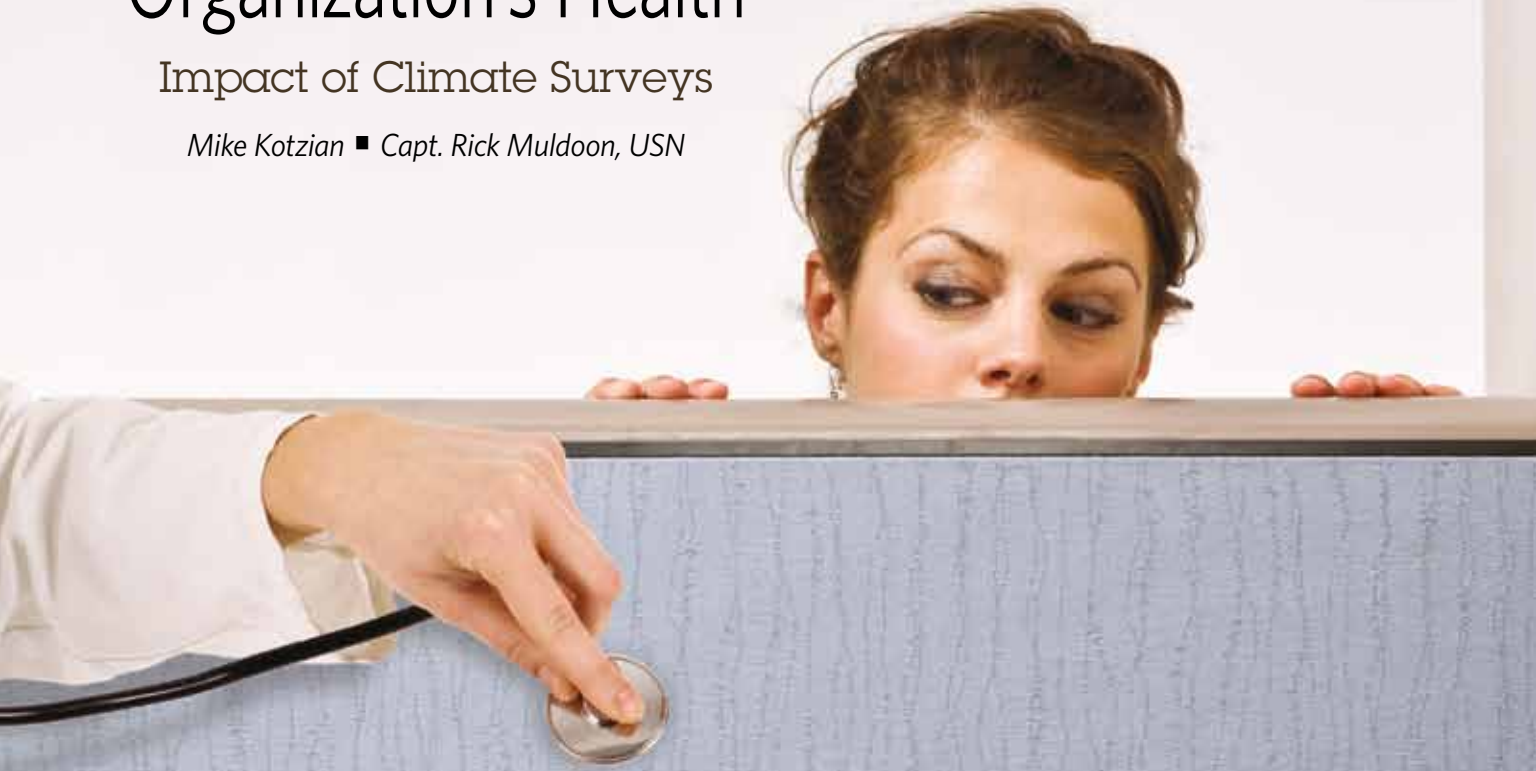
I f you're part of the Department of Defense acquisition community, you're likely part of an orga- nization. You might be part of a virtual team in which parts of the organization are geographi- cally dispersed or in a physical arrangement where there are no virtual connectivity concerns because everyone is crammed on top of one another—or somewhere in between these two workplace environment extremes. You may be new to your organization and still trying to become oriented as to who does what, or you may have been there for years and know where all the skeletons are buried. Regardless of your organizational situation, the objective of any DoD acquisition program is to deliver the most cost-effective capability in the most timely manner while ensuring that all threshold—and ideally at least some objective—warfighter requirements are met.

Kotzian *is a DAU professor of acquisition management.* **Muldoon** *is the program manager for PMA 261.*

To help accomplish this goal, an organization needs to be operating at its maximum effectiveness. But how do you know if your organization is operating to its full potential? Well, before making any strategic moves, you might first want to determine your organization's climate. No, we're not talking about the room temperature in your office or carbon credits. Rather, we're referring to the health of your organization in terms of the perceived "soft" factors that the organization's workforce believes to be true about how their organization is operating. Soft factors are attributes that are more closely aligned to aspects of human interaction such as communication skills, establishment of a team, the importance of trust, etc. In contrast, "hard" factors are typically aligned with the more programmatic aspects of an organization's acquisition mission such as development of an acquisition strategy, ensuring that the necessary documentation is in place before a major milestone review, using earned value management to track financial progress, etc.

Organizational Culture Versus Climate

Many of us might be used to hearing the term "organizational culture" rather than "organizational climate." While both culture and climate are related to organizational management, they are not the same thing.

An organization's culture is typically viewed as those deeply held values, beliefs, assumptions, symbols, and rituals shared across the enterprise. Culture describes the social context of an organization's workplace. Therefore, as a general rule, an organization's culture is shared among all or most of the workforce throughout the enterprise as a result of lengthy periods of repetition and indoctrination. The organization's culture is reinforced through a socialization process from the organization's senior-level people to new employees. Since an organization's culture is deeply ingrained and takes a relatively long time to become established, the corollary is that an organization's culture takes a relatively long time to change. Changing an organization's culture relies upon changing aspects that comprise the basic foundation of what *makes* the organization. Resistance to organizational change is largely driven by a fear of leaving the comfort of an organization's established culture.

On the other hand, an organization's climate represents those behaviors, attitudes, and feelings that reflect the day-to-day operations across the enterprise. Climate describes the psychological impacts of the organization's workplace; it emphasizes the shared perception of how things are done around an organization. Think of organizational climate in terms of relationships and the human side of an enterprise. Compared to an organization's culture, an organization's climate is less ingrained and usually easier to change; it is more malleable and influential in the short term.

Therefore, if an organization's leadership is interested in making enterprise improvements in a relatively short period of time, then focusing on the organization's climate is one ap-

proach that could provide timely changes. By understanding an organization's climate, senior leadership is able to better understand the fundamental perceptions, feelings, and attitudes that drive the workforce's performance. As a result of this increased understanding, an organization stands to gain improved productivity from one of its most valuable resources: its people.

Determining Your Climate Approach

Since your organization's climate is a function of your workforce, you ideally should select a tool that measures what your workforce is thinking, feeling, and perceiving. In general, there are two different approaches to determine your organization's climate.

> **How do you know if your organization is operating to its full potential?**

First, organizational climate data could be collected from a primarily qualitative approach, which typically involves the use of face-to-face discussions with members of the organization's workforce. A qualitative approach could use an interview method in which the interviewer and an individual workforce member are isolated in a face-to-face setting, or a focus group method could be used in which several workforce members are simultaneously in the same room with one interviewer. While the same set of questions could be used in either setting, the interview method in a face-to-face setting affords the potential advantage of openness since the lack of fellow coworkers typically increases an individual's tendency to provide complete and honest answers. However, the focus group interview can provide some qualitative insights not found in the individual interview setting since some workforce members who would not normally open up are actually spurred into providing an input based on the comments from others present at the session.

A second approach is more often quantitative in nature (i.e., numbers and statistics) and based on the use of a survey tool, which allows the respondent to anonymously provide a numerical rating for each question. In this case, each numerical rating is bounded by an established high-to-low range that is described in the survey instructions. The specific questions can easily be tailored from one organization to the

Figure 1. **Importance of Leadership in Instructions**

> Please remember that your anonymity will be protected at all times. The PMA 261 leadership team encourages your full and candid responses as part of this survey. The survey objective is for all team members to express their views freely and without concern of possible attribution or embarrassment.
>
> **SURVEY INTRODUCTION**
>
> This survey consists of three parts.
>
> Part One asks you to provide some demographic information to assist in data analysis. Please be assured that ALL demographic information will remain completely anonymous.
>
> Part Two asks you to answer some questions dealing with PMA 261's organizational climate.
>
> Part Three gives you the opportunity to provide any final comments that you might wish to make.
>
> The PMA 261 leadership team would like to thank you in advance for taking the time to complete this survey. We realize that everyone is very busy, but your honest responses are truly desired in order to continue to improve the PMA 261 organization.

next based on the organization's senior leadership's desired focus. In addition, distributing the same survey tool on a recurring basis after the passage of time—for example, one or two years between each sampling—allows senior leadership to track the organization's climate over time to determine where the organization is showing improvement as well as where the organization is displaying a lack of progress or even regression within certain areas of interest.

One of the advantages of the quantitative survey approach as compared to the qualitative interview or focus group approach is that the survey approach is much easier to accomplish in terms of the resources required to distribute the survey and timeliness to complete. Alternatively, the survey approach has the potential for a low participation rate as there are no ramifications to anyone who is asked to complete the survey but elects to ignore the request to participate. To increase the probability of having a large number of the organization's workforce membership participate in the survey, many organizations will send out a preemptive top-cover electronic message across the enterprise stating the importance that the organization's senior leadership places on everyone taking the necessary time to complete the survey. However, to combat low survey response rates, organizations such as the Defense Acquisition University will send out e-mail reminders while the survey is "open" to respondents to help motivate non-participants to complete the survey. DAU has used this last approach with great success as a means to achieve high survey response rates.

A Representative Climate Survey

A quick search on the Internet will reveal that there are many organizations offering services and suggestions regarding organizational climate surveys: how to develop, distribute, monitor, analyze, and report the results. As an organization chartered to provide mission assistance to DoD's acquisition workforce, DAU has conducted organizational climate surveys across the enterprise in support of a spectrum of different acquisition program offices. In practice, each DAU region utilizing an organizational climate survey may differ slightly in their approaches so as to best meet the needs of their specific customers; however, the underlying approaches are similar enough so that DAU's use of organizational cli-

mate surveys across the enterprise can be viewed as one of many tools to assist program offices—regardless of the specific DAU region being considered. With that in mind, let's walk through how one of DAU's regions—the Mid-Atlantic Region located in California, Md.—has gone about structuring a representative organizational climate survey.

The subsequent paragraphs are not intended as an endorsement that a DAU organizational climate survey is the "best" such survey within DoD. Rather, the following organizational climate survey approach is simply a known tool familiar to and used by DAU's Mid-Atlantic Region to provide organizational mission assistance to acquisition program offices. Any organization contemplating an organizational climate survey needs to conduct the necessary due diligence to ensure the tool ultimately used is structured to gather the necessary information deemed most important to that organization's senior leadership in light of the intended focus.

The DAU Mid-Atlantic Region organizational climate survey has evolved to include five sections: senior leadership statement of importance, survey instructions, requested demographic information, actual climate survey questions, and closing question and remarks. Let's look at each one of those sections.

Leadership Statement of Importance

A focused introductory statement from the organization's senior leadership is used to request the organization's workforce complete a climate survey. This first step is critical to how successfully an organizational climate survey turns out. It is imperative that workforce members understand that their senior leadership fully supports them taking the climate survey—and that the results significantly matter to senior leadership. The DAU Mid-Atlantic Region organizational climate survey clearly states that the results of the survey will be used to make meaningful changes to the organization in an effort to improve performance and effectiveness towards meeting warfighter requirements (Figure 1). So the intended message—just like electing your political representatives—is to participate in the process or don't complain about the outcomes.

Survey Instructions

The DAU Mid-Atlantic Region survey instructions are written so that respondents taking the survey shouldn't have any uncertainties about how to complete it. The climate survey instructions make it clear that there are two different types of questions. One type is the closed question in which the survey participant provides a response based on a scale that offers distinct options such as Strongly Agree,

Agree, Neutral, Disagree, and Strongly Disagree. In addition, those rating questions will each have a text box available for the respondent to provide clarifying comments. While not required, the instructions encourage the survey participant to provide qualitative comments in the text box as often as possible—especially for those questions answered with a Disagree or Strongly Disagree response. The other type of question is open-ended, in which the objective is for the respondent to provide qualitative written answers in a text box.

Demographics

The third section of the DAU Mid-Atlantic Region organizational climate survey asks the respondent to provide some demographic information. The rationale for seeking this type of information is to more finely locate where problem areas might exist. For example, is the problem something constrained to just military members within the organization or common to all military, government civilian, and contractor members? This type of refinement helps senior leadership apply their limited resources in a more bang-for-the-buck manner. DAU knows, however, that requesting too much demographic information may ultimately prevent respondents from taking the organizational climate survey because of the fear that the results could be traced back to the originator. Therefore, the organizational climate survey instructions inform the survey respondent that all results, including the demographic information, are completely anonymous. The results of any one organizational climate survey cannot be linked back to a specific workforce member. In addition, the type of demographic information is tailored to each situation based on what that organization's senior leadership feels is acceptable to their workforce membership.

Survey Questions

The heart and soul of the organizational climate survey are the survey questions, which represent the source of all data

for subsequent analysis leading to conclusions and recommendations. As discussed earlier, the DAU approach is to use closed- and open-ended questions (Figure 2). That approach allows for a complete picture of an organization's health for two reasons. Closed questions provide quantitative results that are subject to regimented statistical analysis. On the other hand, open-ended questions come from

Climate surveys in general offer a solid departure point for any organization that seeks an assessment of its organizational health.

a different perspective by providing soft data available only through the interpretation of human thoughts and musings vice the hard, cold factual results afforded through quantitative means.

Careful thought needs to be applied to the development of actual questions proposed as part of an organizational climate survey. At the DAU Mid-Atlantic Region, we've tried to maintain a core set of questions that have proven to provide a broad insight into the workforce's perception of the organization's climate. In addition to those core questions, there is the capability to augment a survey with questions that might help provide additional data tailored to a particular senior leadership's intent. The bottom line is that whatever questions are chosen, they should be structured in advance to ensure that the collected data will help provide the organization's senior leadership

Figure 2. Illustrative Closed and Open-Ended **Questions**

67. Communication is free-flowing in PMA 261 (up, down, and across the chain of command)
   - ● Strongly Agree
   - ○ Agree
   - ○ Neutral
   - ○ Disagree
   - ○ Strongly Disagree

68. One process that PMA 261 leadership is NOT doing and should START doing is....?

with the proper information needed to best capture a true picture of that unique organization's health.

Concluding the Survey

Finally, DAU Mid-Atlantic Region surveys—and surveys for other DAU regions—usually conclude with an open-ended question that offer all survey respondents an opportunity to voice closing remarks (Figure 3). This final question is phrased so that respondents understand comments are welcome regarding anything related to the previous survey questions or, more important, it allows the workforce member to provide a comment on something not addressed as part of the survey's formal list of questions. This closing question uniquely serves as an outlet for the survey respondent to vent on a topic or topics at the forefront of the workforce member's concerns. Therefore, the DAU premise for including this open-ended question is that survey respondents are likely to openly discuss problem areas given the chance, which can only add to the depth of better understanding an organization's health.

Figure 3. **Closing Open-Ended Question**

The PMA 261 Experience

One of the recent organizational climate survey success stories is related to PMA 261, a program office associated with the U.S. Navy's Program Executive Office for Air Anti-Submarine Warfare, Assault and Special Mission Programs responsible for two major helicopter programs: in-service aircraft (CH-53D, CH-53E, and MH-53E) sustainment, support, and capability improvement projects; and the CH-53K Heavy Lift Helicopter development program. When Navy Capt. Rick Muldoon, co-author of this article, took command of PMA 261 a little less than three years ago, one of his first actions was to enlist DAU Mid-Atlantic's support with an organizational climate survey. Muldoon used the results to chart a course for improving PMA 261's organizational health as he recognized the importance of his workforce to reach mission accomplishment.

Muldoon followed up the initial organizational survey effort with a second organizational climate survey approximately 18 months later. The intent was to achieve an understanding as to how his efforts based on the initial organizational survey results were working as well as to identify any potentially new hot spots within the organization. The results from the second organizational climate survey allowed him to refine the organization's strategic plan to maximize his workforce effectiveness. Regarding the importance of the concept of an organizational climate survey, Muldoon remarked that "the organizational climate survey proved to be an extremely useful tool for me to quickly take the pulse of the command and chart a course to improve the organization's effectiveness. Following up with a second climate survey after 18 months allowed me to reassess how the organization had improved as well as to identify any new areas of concern. An additional benefit of doing the survey and following through with necessary changes, major or even seemingly minor ones, was that it sent a strong message to the team that leadership truly values their opinion and cares about their wellbeing. While not a panacea for all organizational problems, I'd highly recommend its consideration for use by all program managers as a means to increase workforce effectiveness."

Improve an Organization's Health

Virtually every organization pays homage to its workforce by emphasizing their importance to mission success. You've heard the proclamation before: People are our most vital resource. Repeated studies have defended this philosophy because people represent a huge leverage point in an organization's quest for program effectiveness and productivity. Since an organization needs its people to operate effectively and productively, an organizational climate survey might provide a useful tool in the program manager's tool kit to help maximize the impact its workforce has on mission accomplishment. While the specifics associated with DAU's approach to an organizational climate survey might not fit every acquisition program office, we do think that climate surveys in general offer a solid departure point for any organization that seeks an assessment of its organizational health.

Bill McGovern of DAU's Learning Capabilities and Integration Center contributed to the development of this article.

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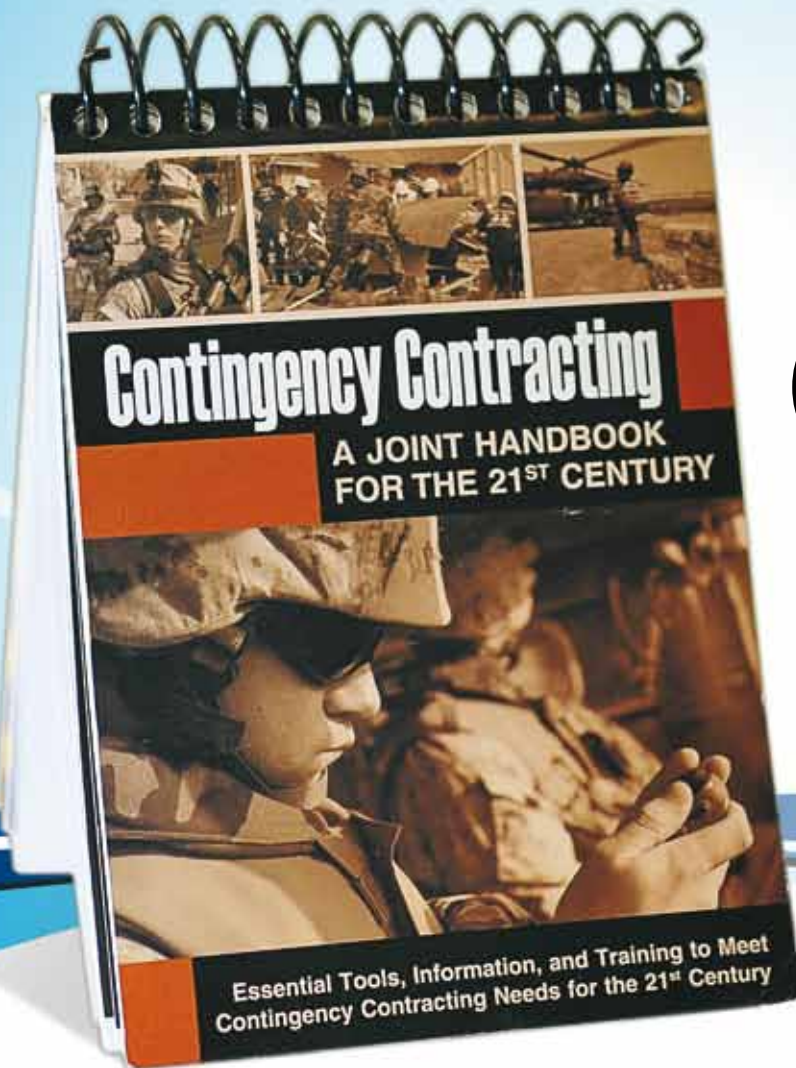
Joint Contingency Contracting

A Step Forward

William Long

Today's contingency contracting officers are being challenged more than ever before. High frequencies of deployments to the field, working in austere environments, and rapidly changing acquisition policies are just a few of the challenges CCOs face every

Long *retired from the Air Force in July 2009 as a major with more than 20 years of active duty. He is currently serving as a professor of contract management at the Defense Acquisition University.*

> **The working group devised an innovative plan to develop a pocket-sized handbook and create a standardized contingency contracting training approach to fulfill the training needs across the entire department.**

guidance, tools, and templates CCOs could use for training in garrison and on the battlefield.

The timing at this point could not have been more perfect. The Office for Defense Procurement and Acquisition Policy had initiated several projects with the Secretary of the Air Force as part of a Joint Contingency Contracting Working Group. The group's mission was to develop an official doctrine for joint Service contingency contracting. This new doctrine was envisioned as the groundwork for the deployment of a joint framework for contingency contracting operations. After promoting the idea to the Office of the Secretary of the Air Force and obtaining sponsorship from the Office for Defense Procurement and Acquisition Policy, we were well on our way. The working group became the conduit to provide the concept with high visibility and funding.

Putting the Plan in Action

The working group first met in Rosslyn, Va., where the architectural framework all came together. The working group was tasked with two main objectives that were performed in parallel: develop DoD Federal Acquisition Regulation Supplement procedures, guidance, and information; and develop a pocket-sized joint Service contingency contracting handbook. With a sponsorship in hand, the group quickly established a team of functional experts from across the Department of Defense to form two separate working groups. The two groups were successful in implementing U.S. legislative initiatives, which resulted in providing the warfighter with a joint Service CCO warfare capability. The groups quickly organized the development of the department's first-ever Joint Contingency Contracting Handbook and, at the same time, pushed for the development of multiple-Service doctrine. As a result of that initiative, the working group was successful in implementing standard core competencies across an entire departmental enterprise, thus meeting Congress' vision of "joint warfare capability."

Standardization

Prior to this initiative, a standard for contingency contracting did not exist at the departmental level, and each Service trained its CCOs using a different model. This included different contingency contracting handbooks and training plans, which were, in many ways, unique and tailored to the individual Service. As a result, CCOs arrived to the theater of combat operations with different training backgrounds and experiences. These differences were two significant factors that contributed to recent U.S. Army procurement problems in the U.S. Central Command's area of responsibility.

The working group identified the factors as serious problems and devised an innovative plan to develop a pocket-sized handbook and create a standardized contingency contracting training approach to fulfill the training needs across the entire department. The plan included accompanying the handbook with a DVD filled with hundreds of contingency contracting tools, templates, checklists, websites, and stan-

day. Keeping up with these substantial changes in the middle of the Global War on Terrorism is no doubt an ongoing training challenge. In this climate, deployments to the Horn of Africa, Qatar, Iraq, Afghanistan, Pakistan, and other countries are anything but Service-specific. Instead, most of these deployments are centered on a joint, or multiple, Service situation. This, in turn, creates an additional level of difficulty that CCOs must learn to overcome.

Joint Contingency Contracting Handbook Initiative

Shortly after my last deployment, I was informed of a permanent change of station move to the Air Force Logistics Management Agency at Gunter Air Force Base, Ala. As I researched AFLMA, I found its mission was to enhance agile combat support capabilities by generating logistics solutions to support the Air Force's enterprise logistics transformation studies, analysis, and war games; and to publish combat support literature. With this in mind, I began exploring the idea of publishing a new contingency contracting guide for deployed CCOs. AFLMA had previously published an Air Force contingency contracting guide in 2003; however the guide was specific to the Air Force, required updating, and, most important, needed to reflect the needs of CCOs operating in the a joint Service environment. In June 2006, I sold the idea of a new guidebook to my commander at AFLMA. Our team at AFLMA went on to build briefings to better present the handbook concept in hopes of obtaining a sponsorship with the Secretary of the Air Force for Acquisition and Contracting. Our vision was to create a pocket-sized handbook with a corresponding DVD containing contracting

dardized training modules to maximize available resources for deployed contracting personnel.

Impact and Results

The handbook initiative benefited the entire department by synchronizing and accelerating the contingency contracting efforts of all four Services. This initiative eliminated redundancy and standardized core training for the entire department. AFLMA and the working group conceptualized and designed a training architecture that provided the warfighter with an integrated and networked tool that increased the interoperability of the various Services.

The initiative also generated other desirable effects. During the course of the project, AFLMA worked closely with Air Force Materiel Command and reduced the time for the command's Lean Contracting 21 Standardized CCO Training initiative by one year. This standardized training approach expedited the initial CCO training support for Air Force Installation Acquisition Transformation, which drove efforts to develop similar constructs at the squadron and regional levels.

The handbook quickly became a highly sought after training tool and was lauded by the director for Defense Procurement and Acquisition Policy as an interagency solution to U.S. Army procurement problems in Iraq, Afghanistan, and Kuwait. In fact, the impact of this idea was immediately noticed by the Gansler Commission, a commission on U.S. Army acquisition and program management reform, citing the Joint Contingency Contracting Handbook initiative as a key recommendation in their final report to Congress.

Rapid Response to the Warfighter

The working groups accelerated their response time to the warfighter by identifying critical training shortfalls and developing urgently needed ethics and integrity training for expeditionary operations. The team built 60 customer training modules to meet the training needs of the CCOs. Additionally, the team developed an anti-terrorism and force protection checklist that provides CCOs with situational awareness and tactical tools to survive in hostile areas.

Going one step further, the group strategically linked the handbook to almost 300 contingency contracting websites and incorporated critical cultural and language skills vital for CCOs negotiating contracts in international locations. Seeing the urgent need for quality control, the group created 75 additional core contracting process checklists to provide CCOs with vital oversight during expeditionary operations. Furthermore, they capitalized on past experiences by analyzing recent after action reports and built more than 150 interactive training scenarios that encourage CCOs to think outside the box when supporting the warfighter.

The groups established a new standard in training and addressed an Air Force-wide training issue by developing stan-

dardized contingency training modules and test questions aiding monthly CCO training. This proved critical for a highly deployed career field with little or no time to develop and implement unit-level CCO training programs. The team also collaborated with sister Services and linked the Joint Contingency Contracting Handbook DVD back to 90 other Service contingency guides and handbooks for Service-specific guidance. The versatility of this pocket-sized handbook and DVD gives CCOs the flexibility to train while in garrison or on the battle front.

Sustainment

The working group postured the department for success by developing a plan for the sustainment of the handbook well into the future. The group stressed an integrated approach, earning department-wide support, which aligned future budgets and planning functions towards a unified strategy. AFLMA coordinated directly with the Defense Procurement and Acquisition Policy Office and developed a budget identifying future funding for contingency workshops, publishing, shipping, and travel costs. Additionally, AFLMA teamed with DAU to expedite development of contingency curricula, creating synergy and utilizing the core strengths of both organizations. Subsequently, that teaming arrangement drove the architectural blueprint for re-writing DAU's Contingency Contracting Course (CON 234). This foresight ensures that departmental contingency contracting will be sustainable and standardized for years to come.

New Contingency Contracting Website

In August 2008, another working group was formed to update the handbook with additional tools, templates, and training benchmarked from across the entire department. Not only did the team successfully update and streamline the handbook, but it also developed the first-ever joint Service contingency contracting website, <www.acq.osd.mil/dpap/pacc/cc/jcchb/>.
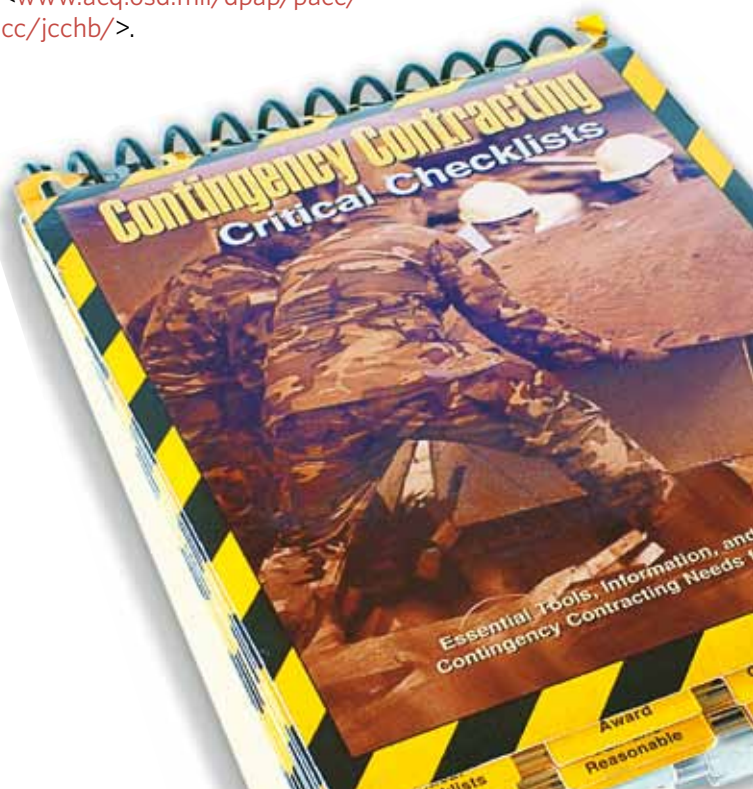
The website provides an additional tool to be used in concert with the handbook. It allows CCOs to instantly access updated, relevant information and expedites the architectural review process. Released in April 2009, the website represents a state-of-the-art portal to share tools and templates, and to provide real-time support for the contingency contracting workforce. This effort shaped how the department searches for and implements key resources for the deployed workforce. It represents the first successful joint venture by the department to maintain the familiarity and currency of the entire CCO corps with regard to acquisition policy changes, and to provide access to the best tools and resources. This unique approach supports the Defense Procurement and Acquisition Policy's capability to provide CCOs with one-stop-shop access to thousands of tools, which is a force multiplier that saves countless manhours. Efforts on this project have set the standard for CCOs of the future by providing a single access point for tools, templates, and resources—whether CCOs are on foreign or domestic soil. In this attempt to standardize and consolidate resources across the department onto a publicly accessible website, the resulting product provides a credible toolset and thousands of Web-based references available anywhere and anytime, worldwide.

New Joint Contracting Handbook

Fielded in June 2009, the new handbook, *Contingency Contracting: A Joint Handbook for the 21st Century*, provides CCOs with additional capabilities and process improvements including:

- Revised and updated chapters on Joint Publication 4-10, Operational Contract Support
- Newly developed graphics for key contracting processes
- New Defense Procurement and Acquisition Policy website (complete with feedback features)
- 12 new critical item checklists
- 73 checklists provided via DVD and website
- 143 CCO support Web links
- 291 Federal Acquisition Regulation and Defense Acquisition Regulations System reference links
- 230 test questions
- 36 newly developed training scenarios
- 47 contracting forms
- 150 consolidated and updated training modules
- 95 publications and regulations uploaded
- 180 frequently asked questions and nine new categories added to the interactive training games.

Joint Curriculum Development

The handbook drove the architectural blueprint for rewriting DAU's Contingency Contracting Course (CON 234). DAU revised its relevant courses by incorporating the latest topics and techniques demanded by the Services and defense agencies, using the handbook as the textbook for select courses. The course changes ensure the depart-

ment "trains as it fights," with current policy and lessons learned.

Feedback from deployed CCOs regarding the revised training has been positive. CON 234 remains the capstone course for all contingency contracting officers. DAU is also currently developing curriculum for a more advanced contingency contracting course (CON 334). The new course and handbook provide contracting officers with all the latest tools and techniques required to successfully operate in and manage a contracting activity in a contingency environment.

Success Story

The Joint Contingency Contracting Handbook won the Fiscal Year 2007 Air Force Contracting Special Recognition Award. In November 2009, the handbook initiative was further recognized by the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics with a Workforce Achievement Award. Defense Procurement and Acquisition Policy continues to sponsor the working group each year so as to capitalize on recent experiences and successful practices from across the department, but these efforts only begin to scratch the surface.

As the saying goes, "Leave it better than you found it, and make it easier on the person behind you." The Joint Contingency Contracting Handbook has certainly been a success story; however, there is still much to be done. The lessons learned in Iraq, Afghanistan, the Horn of Africa, and recent natural disasters over the last eight years need to reflect a step forward, not a step backward. It is essential for the acquisition workforce to continually focus on new and emerging practices and apply these experiences to the next war.

A Call for Action

Lt. Col. Dan Ward, USAF

Hi! I want to talk directly to you, dear readers, particularly those I haven't corresponded with personally or haven't actually met. See, I've got a mission for you. I need your help.

For years, I've been writing about ways to improve the outcomes of our acquisition activities. I've used stories and comics and focused on ideas and principles. I hope that stuff has been both helpful and entertaining—I know I've had fun doing it. This time, I want to really get down to brass tacks and propose some specific actions.

Ward *is the chief of acquisition innovation in the Acquisition Chief Process Office, Office of the Deputy Assistant Secretary of the Air Force for Acquisitions Integration.*

Please don't mistake this as a checklist of 10 easy steps to program management bliss. The things I'm asking you to do are neither easy nor guaranteed to deliver results. They may not help you on your particular project or activity. Nonetheless, I hope you'll do at least some of these things—not because I asked, but because they make sense to you for your particular situation.

Have "The Talk"

Regular readers already know I write about values a lot. When I use that word, I'm talking about values as preferences and priorities, not ethics and morals. In this context, values are the measures of merit, the signs of sophistication that indicate whether we've done good or not. Lately, I've taken to calling values meta-requirements because they are the means by which we judge the validity and worth of other requirements within the system, function, organization, or process.

It's important to be deliberate about our values. If we're not, we end up being propelled by the unconscious inertia of invisible values … which may or may not be constructive. And along with understanding our own values, we also need to be aware of our teammates' values and priorities. When we are unaware of the different values held by various partners, we tend to encounter unproductive friction.

So the first thing I'm asking you to do is talk about values with the people around you—the contractors, customers, senior leaders, and engineers on the project. Getting started is as easy as asking a few questions. You might begin by asking "What is the most important aspect of this system/organization/process/briefing?" You're looking for answers that address things like timeline, cost, complexity, and size. You could cut right to the quick and ask, "Is it important that we deliver this on time? On budget? Or are delays and cost increases acceptable if they result in a bigger, shinier, more advanced system?" The answers might surprise you.

It could be interesting to ask questions like "Would it be acceptable to deliver 70 percent of the capability if we did it for 50 percent of the time and cost?" If the answer is yes, you know the project leaders value being fast and inexpensive. If the answer is no, then the project leaders clearly value something else, like delivering a 100 percent solution in response to a stated need.

Regular readers know I think certain sets of values are more productive and appropriate than others. I'm quite fond of a value set called FIST (Fast, Inexpensive, Simple, Tiny), and I offer it for your consideration. But regardless of what values your team embraces, the first step is to discover what the team's values actually are. So please, have the values talk.

One more thing—while I refer to *the* values talk, it is not actually a one-time event. It's more of an ongoing conversation. You might want to write some of your discussions down and

> # What is the most important aspect of this system/organization/process/briefing?

refer to them at key decision points later. That way, when you hear, "We're going to slip the schedule so the technology has more time to mature," you can reply "Really? I thought we'd agreed it was important to deliver quickly. …"

And by the way, it's never too late to start the values conversation.

Be Fast and Incremental

I want you to set requirements that can be satisfied in a short timeframe. That's entirely consistent with DoD's overarching acquisition policy and guidance, if not our general practice. As a rule of thumb, I'd say we should aim for less than two years from conception to initial operating capability (DoD and the Government Accountability Office say less than five). In some cases (i.e., certain software development efforts) two years is w-a-a-a-y too long. In other cases, it's a bit on the aggressive side, but for the most part, I think two years is a good target, precisely because it's aggressive. Please don't get too wrapped up in endless debates over when to start or stop the clock; how we define "timeline;" or whether the maximum should be one, two, or five years. The important thing is to deliver systems quickly, however you measure it in your particular context.

You may not be the one who writes the requirements, but if you have any role in shaping, documenting, expressing, or interpreting them, you have an opportunity to push them in the direction of short timelines. I recommend this because I value being fast—and I think it's a productive value for a wide range of system development projects.

Maybe speed isn't something your team values, but it probably should be. A recent briefing by the Zachary Lemnios, director of defense research and engineering, quoted several value-rich statements from the combatant commanders such as "I need the 70 percent solution today rather than the 100 percent solution in five to eight years," and "I like the one-year acquisition cycle rather than the standard five to eight year cycle." Those statements are profound expressions from our customers of the importance of speed. They clearly point to being fast as a meta-requirement that should shape the development and interpretation of subsequent requirements. If you think your team doesn't need to value speed, make sure you confirm that with your customers.

Sometimes it is hard to make decisions that express the speed value. If the combatant commanders quoted in the previous paragraph are among your customers, you're in luck. They've already told us they value being fast and want things to move quickly. You'll probably get good support in your efforts to be fast. My experience with customers, however, is that they're really excited about getting something developed and delivered on a short time-line, but sometimes we have to remind them they don't really want to wait for the 100 percent solution. This gets a lot easier if you're already having the values conversation.

On that note, it's important for everyone to understand we are not simply choosing between a partial or a complete solution. It's actually a choice between a partial solution or no solution at all. That is, today's 70 percent solution has real value for the current fight while tomorrow's 100 percent solution does not.

It is also important to remember that an incremental strategy delivers a 70 percent solution now, an 80 percent solution next, and so on as opposed to supposedly delivering a hypothetical 100 percent solution five, six, seven, eight, nine years from now. This iterative approach has the added benefit of ensuring our systems are operationally relevant and technically up-to-date. And isn't that the mission of acquisitions—to deliver affordable operational systems that are available when needed and effective when used?

So I'm asking you to fight like hell to prevent schedule extensions. Do whatever it takes to avoid slipping a milestone—descope the program or shift requirements to a subsequent increment, spiral, or block (pick your favorite term). Please don't slip the current increment's delivery date. As GAO's Director of Acquisition Sourcing and Management Division Paul Francis recommends, "Allow schedule to constrain the design." Again, this is much easier to do if you've already started the values conversation. Whatever you do, never extend your schedule "to let the technology mature." Build operational systems out of technology that is already mature. Trust me, there is always a large body of mature, underused technology just waiting to be sent into action.

Today's 70 percent solution has real value for the current fight while tomorrow's 100 percent solution does not.

Be Cheap and Flexible

If it's at all possible, avoid using the "Here's what I absolutely need the system to do, how much is it going to cost?" approach. Instead, frame the scenario as "Here's how much money I have, how much capability can I get?" To state it more formally, use fixed cost and floating requirements instead of fixed requirements and floating costs. Sure, some people will still promise the moon in response to this situation, but when the inevitable problems arise, you will already be postured to adjust the requirements instead of extending the schedule and budget. So along with allowing schedules to constrain the design, I'm asking you to allow budgets to constrain the design as well.

The underlying idea is that it's better to deliver something useful now than to promise something useful later. This is another case where using mature technologies pays dividends. Because a mature technology is a known quantity, we can produce more reliable schedules and budgets. We get less instability because there's more knowledge. And for the data-inclined, the aforementioned assessment by Francis shows the cost growth of research, development, test, and evaluation programs using immature technologies is orders of magnitude larger than those using mature tech. Google® it, or send me an e-mail and I'll hook you up with his actual briefing.

Exercise Restraint

Ultimately, I am asking you to allow both the schedule and the budget to constrain the design. That's what Francis is asking too. I know this can be difficult. As an engineer, I am fully aware of the temptation to improve a system by adding new widgets. It's what engineers do. Adding components and functions is a sign that we made a contribution to the design, an indication that we've done some work and earned our pay. But good engineers know the real work, the most valuable work, always comes down to simplifying the design, stripping away the extraneous in order to reveal the essential. And good engineers know that delivering the system is the ultimate measure of success. Restraint increases the likelihood of delivering something useful in an operationally relevant timeline.

This points us again to the issue of values. Do we value simplicity in the system, or is it more important to provide a hundred different functions and components? Do we recognize that an elegant, simple design is evidence of deep thought and much effort, or do we only see signs of achievement in complexity? Do we trust simplicity? Or do we prefer complexity? This is an important topic for program managers to discuss with the engineers and customers because it gets to the core of what constitutes good design and good work.

NASA program managers on the Near Earth Asteroid Rendezvous (NEAR) mission deliberately resisted incorporating "good ideas" into the system while still acknowledging that the ideas were good. That design restraint expressed appreciation for the people who expressed the "good ideas" and also avoided increases to the mission's cost, schedule and complexity. Readers familiar with my "Faster, Better, Cheaper Revisited" article (*Defense AT&L*, March-April 2010) already know the details of this highly successful mission. For now, I will simply reiterate that their success was the result of firm, values-driven restraint that focused on delivering the essential capability. It is exactly this kind of productive, creative restraint I hope you will exercise on your project.

Read Good Books

Since you're reading this article, I assume you place some value on reading in general. No doubt you already make time to read other things, and if you're like me, you probably have a perpetually growing stack of books to read someday. At the risk of making your reading list even longer, I'm recommending a few titles to consider (see sidebar). But whether you read these books or some others, keep reading good books. Read the really good ones again.

Share Your Story

Share your story, and there are numerous ways to do that. You can write your story, but trust me on this one; writing is hard work. It's time consuming and often frustrating. But when it works, it's also a lot of fun. So I want to encourage you to write something and get it published. I'll bet you have an opinion on something related to defense acquisitions, an experience worth reflecting on, a lesson worth sharing. Maybe the only reason you haven't put it down on paper yet is because nobody asked you to. So I'm asking. If you don't tell your story, who will?

Alternatively, you could send me an e-mail at <daniel.ward@pentagon.af.mil>. I really want to hear from you. I want to hear your stories, your triumphs, and your trials. I'd love to field your questions and receive your critiques. I'm more than happy to be a sounding board and would love to get together over coffee if our geospatial coordinates intersect. But whether you write to me or not, I hope you'll tell your stories to someone. Grab a buddy and go out to lunch. Write to an old boss, professor, or colleague. Talk about your projects, past or present. Reflect on the way your values shaped your decision making. It's time well spent.

Books To Read
- *Boyd*, by Robert Coram
- *The Chaordic Age*, by Dee Hock
- *Orbiting the Giant Hairball*, by Gordon MacKenzie
- *Maverick*, by Ricardo Semler
- *Re-Imagine*, by Tom Peters
- *Losing My Virginity*, by Richard Branson
- *The Reflective Practitioner*, by Donald Schron
- *The Hypomanic Edge*, by John Gartner
- *The Hacker Ethic*, by Pekka Himanen
- *Up The Organization*, by Robert Townsend

Connect

One of the great things about writing for *Defense AT&L* is the opportunity to hear from readers. It's fun to share ideas and stories with so many of you, to commiserate and celebrate life in the defense acquisition community. So the next thing I'm asking you to do is connect with each other.

I think it would be great to have an online forum where readers can connect, share, and learn. This place would have links to resources (articles, briefings, conferences, etc), and discussion threads on various topics. I know there are several in-house platforms out there that provide this kind of capability as well as plenty of commercial platforms, but I'm not sure we've really gained critical mass on any particular one. I'd love to hear your thoughts and suggestions on this. If you're already using one, I hope you'll send me an invitation to join in. If one of you has a better way to connect, I hope you'll share your solution.

Share This Article With Someone

Here's something everyone can do: share this article with someone. Share it with your team, your boss, or your customer. I hope this request doesn't sound self-serving. I'm just as happy to have you poke holes in my ideas, debate them, or challenge them as to recommend or defend them. But mostly, I hope you can use this article to help start a discussion about your team's values and how they shape decisions and behavior on the project.

Finally…

If this is your first time reading one of my articles, welcome and thanks for taking the time to read. I hope you found something useful here, and I invite you to check *Defense AT&L*'s online archive (<http://www.dau.mil/pubscats/pages/damtoc_new.aspx>) for a wide range of previous articles by oodles of other writers. Good luck out there. Take care of each other. And if you have a moment, drop me a line.

ABCS—Not Business as Usual

Brig. Gen. Harold J. Greene, USA ▪ *Janet Greenberg*
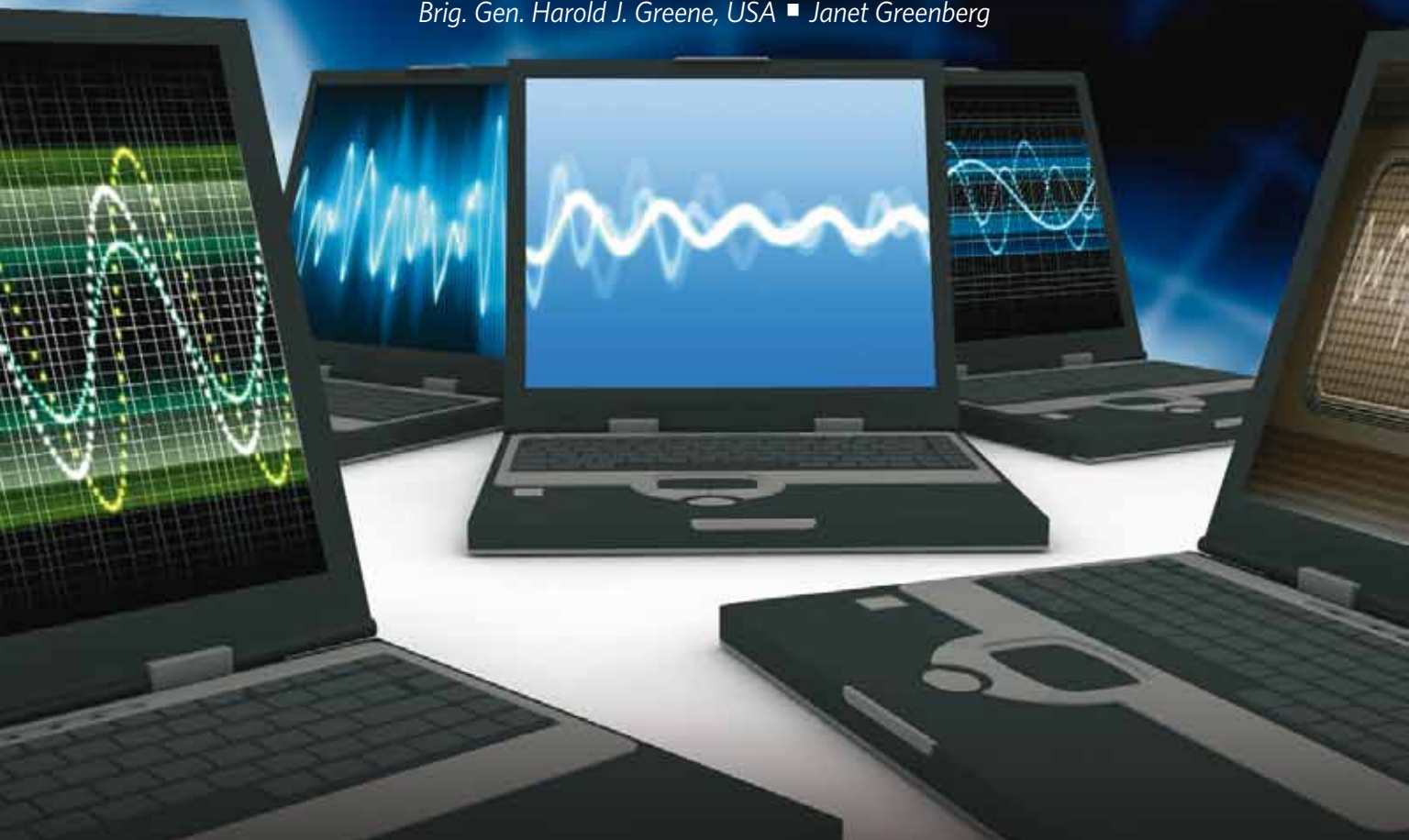
In order to fight and win wars, the Army must be organized, directed, controlled, supported, and sustained in a manner that guarantees mission accomplishment. The Army of the 21st century combines flexible organizational elements, battle-proven techniques of leadership, and a basic concept of command and control that combines historical experience and modern information technology. The Army Battle Command System (ABCS) provides commanders the battle command architecture necessary to gain and maintain the initiative and successfully execute missions.

ABCS consists of 11 battlefield systems that provide capabilities to support the warfighter's mission needs. Each system aids in planning, coordinating, and executing operations by providing access and passing information from a horizontally integrated command and control network.

Greene *previously served as the U.S. Army Project Manager, Battle Command, where he led the development and fielding of the ABCS system of systems. He is currently the deputy commanding general, U.S. Army Research, Development and Engineering Command/commanding general, Natick Soldier Systems Center.* **Greenberg** *currently works for Product Manager Strategic Battle Command. She has more than 25 years of software and systems engineering experience in military and commercial applications.*

Systems within ABCS support soldiers specializing in warfighting functions; for example, maneuvering, intelligence, fire support, and logistics. In 2003, the chief of staff of the Army directed that the Army shift its funding efforts away from developing the battle command architecture using a bottom-up and functionally aligned structure to one that is focused on developing the architecture from the top down with greater horizontal integration. Additionally, he directed fielding the ABCS capability to the entire Army.

Program Manager Battle Command (PM BC) was designated as the ABCS lead shortly thereafter, responsible for delivering an interoperable version of ABCS to the Army per the chief of staff's guidance. The PM's team met the intermediate milestones of delivering ABCS 6.4 to the Central Technical Support Facility for integration testing in April 2004, training soldiers in the 4th Infantry Division in fall 2004, participating in Joint Red Flag/Roving Sands in summer 2005, and then delivering a final version to the 4th Infantry Division in support of their deployment in fall 2005. Since then, every brigade combat team rotating into theater has received ABCS equipment, training, and support.

Implementation Challenges

There were many lessons learned in those two years during the test, training, and fielding of the software. The greatest challenge that arose was that the software was found to be stovepiped, or functionally aligned. It was obvious to users of ABCS that each of the component systems was designed and developed independently of the others. Each system had unique user interfaces, servers, training products, and field support mechanisms. The resulting system of systems, while more interoperable than its precursor systems, was complicated to train and maintain. In addition, similar capabilities were provided by multiple systems within ABCS.

Additionally, the world did not stand still while ABCS 6.4 was developed, tested, and fielded. The Army continued to evolve, the force structure changed, and modular force packages were built around brigades. The commercial world improved many key technologies such as voice over IP, satellite communications, and Web-enabled software. Finally, future battle command programs loomed on the horizon. How would ABCS be phased out while still meeting the needs of soldiers in conflict? How best to manage the change? To answer those questions, the Battle Command Migration Plan was developed in 2005.

Developing a Vision for the Future

The Battle Command Migration Plan mapped out the development, fielding, and finally, retirement path for ABCS. The goals of the plan were to lower life cycle cost by moving to a smaller footprint; make the systems easier to use, train, and configure; and field a single standard capability to every unit that provides the basis for tailoring for unique unit and mission needs.

The vision presented in the plan had three primary components roughly corresponding to the main thrusts of the work to implement future ABCS planning—technical, logistic, and contracting. Taken together, those three visions formed the programmatic baseline that was implemented in the move from stovepipe systems to a net-centric force. The technical vision's main theme moved the stovepipe systems from a server-centric architecture to a net-centric architecture. The logistics vision focused on breaking the existing stovepipe paradigm. One key work area was to provide a single interface to the field for all ABCS systems to make it easier for soldiers to report issues and track fixes. The contracting vision supported a more agile software development environment. It allowed for smaller contracting houses to develop services, but envisioned a single integration organization performing the systems engineering top-level design tasks and managing the necessary integration and test efforts. Those visions were not independent of each other and thus required close coordination amongst all involved stakeholders.

Need for Greater Coordination

In 2003, each component of ABCS was in its own program shop with a program manager and prime developer. Each program shop developed and tested all component functionality. For example, the fires part of ABCS, Advanced Field Artillery Tactical Data System, had a program office with a program manager with a single prime developer. The program manager, as stated in his charter from the assistant secretary of the Army for acquisition, logistics and technology, was responsible only for delivering the fires capability in a product to the Army. The wording of the charters, with their well-defined scope of responsibility, caused program managers to become very product-focused.

With program managers so product-focused, there was a tendency to neglect system-of-systems considerations when faced with decisions. One example is how Battle Command Sustainment and Support System (BCS3) chose a laptop for fielding in 2003. The original decision was to move from the common hardware platform to a Microsoft® Windows laptop. An analysis was done, but neglected to factor in system-of-systems requirements. An IBM® laptop was selected, based mainly on cost considerations, for the BCS3 program. Unfortunately, the IBM laptop did not become the standard platform for ABCS and thus required a unique maintenance system, confusing the field users. At one point, there were four different methods to sustain laptops provided by various parts of ABCS. While the choice of the IBM was correct for BCS3, it was not best for the system of systems.

This way of analyzing requirements—taking into account the entire battle command suite of systems—required a transformation in the thinking of leadership and developers. The emphasis in PM BC shifted from working on a single product to working on both the product and the system of systems.

Emphasis was also placed on working for both the warfighter and the taxpayer to make sure the capability was developed in the most cost-effective way possible.

Working in a system-of-systems environment required greater coordinated activity across the programs and the functional areas. Take, for example, the server consolidation effort begun in 2004. This effort was spearheaded by Product Manager Tactical Battle Command (PdM TBC). By hosting core server functionality, the number of servers required in theater was greatly reduced. This effort was a great example of team play—PdM TBC needed to work closely with the other ABCS program manager shops so that redundant servers could be identified and then eliminated from the system architecture. The technical and fielding teams had to determine how this new server would be delivered and maintained in theater. Finally, the training team had to work to determine how best to train soldiers and maintainers on this new server.

The design, development, testing, training, and fielding of a system of systems also required a different mindset for Headquarters, Department of the Army and the Office of the Secretary of Defense. Systems and funding have traditionally been set for individual systems, not a system of systems. Budgeting, for example, is done on an individual system basis; however, there are some activities that are required at a system-of-systems level (such as getting certifications and doing system-of-systems systems engineering) that either need to be funded directly or via taxing of the component systems.

In developing and fielding a system of systems like ABCS, the acquisition community needs to remain aware of new technologies and best processes in the commercial world.

Leadership Support

Perhaps the biggest lesson learned in the ABCS process is that leadership must play a key role. Leaders must be forward thinking and create processes that force engagement by the product managers and the other stakeholders. PM BC instituted the Executive Integrated Product Team with sub-IPTs for technical issues, training, and fielding. The EIPT was used as a forcing function to get different disciplines and all the program manager shops to communicate and to synchronize large groups who often had different goals and schedules.

Need for Systems Engineering

For a system of systems to be developed and fielded, there must be upfront systems engineering performed. That includes hardware, software, network architecture descriptions, risk identification and mitigation plans, data and schema descriptions, and integrated schedule development. Such critical planning must also include periodic public design reviews.

The first step in the systems engineering process might include, as it did for PM BC, a briefing with the system-of-systems technical, sustainment, and business/acquisition visions. Those visions were briefed to leadership and then turned into an executable plan, including a schedule with a critical path, documented requirements, architecture products, etc. Any proposed changes of the component systems to the plan must be assessed for the impact to the system of systems. The systems engineering process includes all the programs that are part of the system of systems and must be able to take into account technology insertions and changes in program direction.

Gaining Momentum

Another lesson learned is the value of a quick win to get momentum. The server consolidation effort is again a good example. In ABCS 6.4, as delivered to the first users, each system had its own server architecture. The servers were not integrated; there was a mix of unit- and PEO-provided equipment that was not necessarily compatible. PdM TBC took the lead to consolidate many of the servers into a single server solution, the Battle Command Common Server (BCCS). The Army Information Server, Maneuver Control System, Information Dissemination Manager—Tactical, and Tactical Battlefield Enterprise Services were all servers in the ABCS architecture that provided information and enterprise services—such as e-mail—to the systems in the architecture. The servers cost about $5.34 million; the new, consolidated BCCS came in at approximately $3.47 million, a significant savings in hardware to the Army. The BCCS was integrated with ABCS, modular by design, and reduced the server and field support footprint. In order to execute the first step of server consolidation, products from four different offices were brought together under one office.

Need for Early Testing

The general philosophy for testing is to have as much testing as early in the development process as possible. Bugs found early in development cost less to fix and are much more likely to get fixed. A new approach for the system of systems was developed for subsequent ABCS versions. Prod-

ucts underwent stovepipe development test at contractor sites, then were sent forward for risk-reduction testing. A risk-reduction test is non-attributional testing of both functional and system-of-systems capability. It allowed program managers to test specific threads and new functionality and gave programs an opportunity to fix bugs and/or adjust techniques, tactics, and procedures. It also gave programs a chance to check that their services and clients interacted as expected and used the infrastructure as designed. Following the risk-reduction test, products moved into the formal test-fix-test and certification environment for attribution and reporting to leadership.

System-of-systems development and testing will increasingly be dependent on a consistent, coherent program objective memorandum estimate for the system of systems. In the future, funding will likely need to be allocated to the system of systems rather than to individual programs. Creating a system-of-systems program objective memorandum estimate was first done for the fiscal year 2008-2013 funding cycle by taking the migration plan, detailing out requirements for each product manager, prioritizing the work based on the system-of-systems efforts taking priority over stovepipe functionality, and then cross-leveling it so that gaps and duplications were identified. This resulted in an overall lower bill to the taxpayer, with interoperability among the systems built into the design. This would not have been possible without leader engagement, public design reviews, and a great deal of detailed systems engineering work done in advance.

The transformation of ABCS from many stovepipe systems to a system of systems has not been just a technical issue; many different components need to work together.

The field support concept also underwent change as a result of lessons learned from fielding ABCS 6.4. The old field support process had individual system field support representatives embedded in units. Reducing the number of contractors in-theater was done by cross-training them so that they would be able to support more than one system. Support issues that could not be immediately resolved were inputted into a central system where they were worked by experts in the continental U.S.

Recommendations

Creating a vision to guide migration to the future is a key recommendation. The vision establishes a strategy and the process to be used to execute that strategy in advance of any hardware or software development. It should be a single, in-

tegrated technical, logistics, and business overarching vision created and agreed to by all major stakeholders, to include the organizations that fund the system of systems.

Systems engineering of the system of systems with the development of the associated architecture products must support the execution of the vision. Robust and integrated network services need to have detailed systems engineering that is focused on the architecture for net-centric warfare.

It is imperative for the system-of-systems management to continue to notify the Army leadership on testing, operational, funding, training, fielding and sustainment issues on a frequent basis. The Battle Command General Officer Steering Committee provided an excellent forum for ABCS. The forum was instrumental in getting Department of the Army-level guidance and issue resolution across agencies.

The transformation of ABCS from many stovepipe systems to a system of systems has not been just a technical issue; many different components needed to work together. There needed to be a network providing the commander with needed functionality, supported by trained soldiers, and with excellent technical support in the field, to keep it working under all conditions.

In developing and fielding a system of systems like ABCS, the acquisition community needs to remain aware of new technologies and best processes in the commercial world. In addition, acquisition must adapt to the increasingly complex systems that warfighters use. A culture change is needed to make dealing with new technology and complex systems easier. A change in the thinking of all stakeholders in considering just a narrow system view to always considering the broader system-of-systems view is the first step. Stakeholders must always consider the impact of decisions on the next larger system of systems in all areas—development, training, fielding, testing, support, and funding.

Acquisition Training

A Lifelong Process

Wes Gleason ▪ *Steve Minnich*

There is an old saying that you don't really understand something until you have to teach it to someone else. With both of us having more than 20 years of defense acquisition experience, we were confident in our abilities and knowledge of the acquisition process. So much that we decided to join the Defense Acquisition University faculty as professors of acquisition management. As new instructors, we expected the teaching certification process to consist of taking "train-the-trainer" classes to enhance our classroom presentation and facilitation skills. We were surprised to learn that we would

Gleason *is a DAU professor of systems engineering and acquisition management.* **Minnich** *is a DAU professor of test and evaluation and acquisition management.*

also be required to retake many of the acquisition and program management courses previously completed. Both of us thought, "I already know this stuff!" Though skeptical of the need, we retook the courses to satisfy the teaching certification requirements. Over the next several months, we completed the courses, received our certifications, and began teaching the courses ourselves.

In going through this process, however, we quickly recognized the value of retaking the courses. There were many changes to the defense acquisition and requirements generation processes that we simply were either not aware of or found were not relevant in our most recent previous job assignments. While we had a general awareness, there were topics addressed that covered areas handled by others in our offices. As a result, we did not possess an adequate understanding of these topics to teach the material with confidence.

There was material presented that we had simply forgotten because it was not part of our everyday job in recent years. While this was expected with some material in the advanced courses, we were surprised that we had forgotten material taught in the basic and intermediate courses.

How could this be? Like many people, we received our Defense Acquisition Workforce Improvement Act (DAWIA) certifications years ago. Once we had the required "check in the box" to be qualified in our particular career fields, we seldom took refresher courses or courses for currency. Over the years, we had satisfied our biannual 80-hour continuous learning requirement through graduate courses, symposiums, and other training events (basically any training we had done lately that we could sell to our supervisors for credit). Having graduated from college with engineering degrees, we worked under the assumption that we could always refer back to our textbooks if we forgot something. While this practice is valid for engineering, where the laws of physics don't change, it is not valid for defense acquisition positions—or defense acquisition areas of expertise. The defense acquisition process is ever evolving. Since receiving our DAWIA certifications, the Department of Defense 5000 series policy documents that govern the defense acquisition system have undergone several major revisions; the Joint Capabilities Integration and Development System process was established; and many changes to public law, acquisition regulations, and policies have been made, including the Weapon Systems Acquisition Reform Act of 2009. Portions of what we previously learned and the associated information contained in the previous guidance had become outdated and was no longer relevant. We realized it was time to recycle all the old acquisition materials we had been carrying from job to job.

Current Defense Acquisition Environment

So why is this important to the acquisition workforce? Quite simply, it reinforces the need to stay on top of our game. Defense acquisition is a very dynamic, high-dollar, high-stakes business with significant visibility from the executive and legislative branches of the government, the news media, and the public.

As we continue to be plagued by program cost and schedule overruns, each administration seeks to reform the defense acquisition process. Most recently, President Barack Obama, with unanimous support of Congress, recently signed the Weapon Systems Acquisition Reform Act. But acquisition reform has been around for years. Remember the $400 hammer and $600 toilet seat from the 1980s? Those revelations prompted then-President Ronald Reagan to establish the Packard Commission. As a result of the Packard Commission and other internal DoD initiatives, many reforms were made. Since then, we moved our organizations through "right-sizing" and transformed our business processes to be more efficient. But despite those efforts, we are still experiencing significant cost and schedule overruns on many of our major defense programs. Will the latest reforms be better? While this is a subject of much discussion lately, one thing is clear: no change will be effective in producing the desired results without a highly competent acquisition workforce.

Building Competence

Training is a key element in building competence, but often there are barriers that prevent us from getting the training we need. At the organizational level, funding tends to be the most significant barrier. Recognizing this as a barrier, Congress passed Section 852 of the fiscal year 2008 National Defense Authorization Act, which required DoD to establish a Defense Acquisition Workforce Development Fund. The fund is a multi-year initiative to support recruiting, training, development, and retention programs.
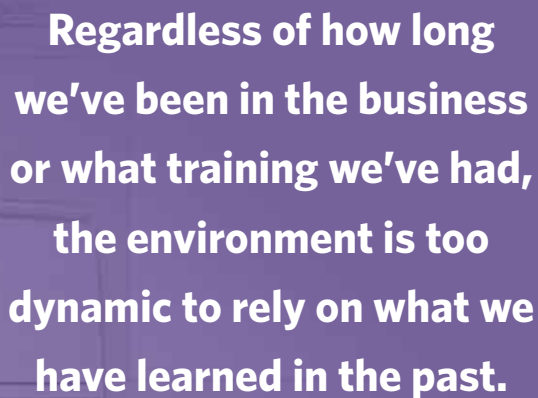
There are also personal barriers—personal reasons we chose not to take more training. From our own experience working in the acquisition community, we have seen many, including:

Too Busy to Take the Time

According to Parkinson's Law, the time to complete a task will expand to fill the time allocated. Thus, if you are looking for a slow time when you can take training, it will never come! We need to recognize the long-term value of training and make time. It is similar to assembling a new bike or barbeque grill—while it's tempting to just start building, in the long run, it will save you time to read the instructions first. The task goes faster when you better understand what you are doing. Acquisition training needs to be a scheduled event or it won't get done.

Over-Reliance on Experience

While there is no substitute for good experience, simply counting years is not an adequate measure. Doing the same job for 15 years is not equal to 15 years of diverse experience. Even if you change jobs or move to different programs, you

> **Regardless of how long we've been in the business or what training we've had, the environment is too dynamic to rely on what we have learned in the past.**

may find yourself focused on only one phase of the acquisition process. To be a more effective acquisition professional, you should have a good understanding of all phases of the acquisition process and know how to apply your expertise across the acquisition life cycle. Most likely, you have only worked for one military service or have been in the same command for years. When was the last time you contacted another command or service to find a solution? Are you applying lessons learned and best practices in your program? Acquisition training will broaden your knowledge and expose you to ideas from people outside your command and service.

Reluctance to Take Another Class Based Upon Previous Experience

You may recall previous training courses as "death by viewgraph" and desire to never see a classroom again. While this may have been true years ago, many courses are now geared to group exercises and problem solving using real-life scenarios. Often, there are no "textbook" answers, as the groups must perform critical thinking, make a decision, and then be able to solidly defend the decision to the rest of the class. In addition to being much more engaging, the retention rate for this experiential-type learning is considerably higher. And it's much better to make a mistake in the classroom and learn instead of back at the office where it could cost the program. Students are overwhelmingly pleased with this learning method. Many students walk in the door with low expectations and leave wanting to take more courses. Acquisition training is more engaging than ever before, focused on building critical thinking skills rather than rote memorization.

Already Have Your DAWIA Check in the Box

As a general rule, what gets measured gets done. If you haven't completed your DAWIA certifications or your continuous learning requirements, then it gets tracked and reported until you get the check in the box. But once complete, it's no longer measured, and there is no longer pressure to complete further acquisition training. However, the 80-hour continuous learning requirement is the minimum, not maximum. Depending on your experience level and job complexity, more training may be required. Also, how long has it been since you received your initial certification? If it's been a while, you probably need more than 80 hours of continuous learning to be current. As we recently learned, the shelf-life of your acquisition training is much shorter than you may realize! Acquisition training should not be considered just another check in the box, but rather, a key element of building/sustaining your lifelong pursuit of acquisition knowledge.

Staying Current

Recognizing the need to stay on top of our game, how do we stay current?

Take Meaningful and Relevant Training

Continuous learning should build upon your basic certification training and be used to maintain your currency on recent changes that affect the defense acquisition community. With advanced planning, no one should have difficulty completing the 80-hour continuous learning requirement. If you are not sure regarding which courses to take, the Core Plus Development Guide provided in DAU's iCatalog (<http://icatalog.dau.mil>) is a good starting point for assignment-specific courses. Browse DAU's continuous learning center for courses of interest. The online learning assets are accessible to all acquisition workforce members anytime and anywhere. Check your Service's or agency's e-learning portals for other online courses and your local command's onsite training opportunities. Be sure to work with your supervisor to create an individual development plan to schedule acquisition training as part of your annual goals.

Seek Knowledge Sharing Opportunities.

DAU's Defense Acquisition Portal (<https://dap.dau.mil>) provides online access to a variety of tools and reference materials. The portal includes quick links to the Defense Acquisition Guidebook, which is a compilation of lessons learned and best practices; and the Acquisition Community Connection, a website for acquisition community information organized by specialty. Those online communities of practice provide an electronic forum for sharing knowledge and information.

Additionally, professional symposiums and events sponsored by your local chapters of professional societies are excellent ways to build your professional networks, stay current with latest changes, and learn new ways to solve acquisition challenges. Reading professional journals and defense-related news articles will also help you stay current and enhance your situational awareness. The Early Bird News Service (<http://ebird.osd.mil>) provides a daily compilation of defense-related news articles and is an excellent resource for gaining insight into how the public, Congress, and the media view the military and defense programs. The Government Accountability Office's reports on national defense and acquisition-related issues (<www.gao.gov>) are another excellent resource. Many of the changes in the

Weapon System Acquisition Reform Act and DoD acquisition policy documents are the direct result of findings and recommendations provided in those reports.

Taking Courses in a Secondary Career Field

Taking e-courses or continuous learning modules (<www.dau.mil/training>, then select "browse online courses") from a different career field can broaden your perspective. Most of us work on integrated product teams, but we often lack a detailed understanding of the interrelationships of the different functional areas. How many system engineers have taken logistics classes to better understand what logistics elements are impacted during early design decisions? Probably the same numbers of logisticians that have taken systems engineering classes to better understand the technical reviews that occur early in the acquisition process. By broadening your knowledge, you will not only become a more effective team member, you will become more competitive for future career advancement.

Achieving Our Goals

Developing and fielding complex weapons systems to meet an ever-changing threat is extremely challenging. But that's why we chose to work in this business. There have been many changes over the years to help the acquisition process produce better results. But no matter what we change, it all comes down to having the right people in the right jobs with the right knowledge and experience. We need to recognize that regardless of how long we've been in the business or what training we've had, the environment is too dynamic to rely on what we have learned in the past. To make change work, we need to understand the change and its possible impacts. There are many training resources available to keep pace with these changes. Make the time to keep yourself current. You may think you already know this stuff, as we did. Then one day we had to teach it, and we realized we should have done more!

The authors welcome comments and questions and can be contacted at steven.minnich@dau.mil and wes.gleason@dau.mil.

DoD Systems Engineering Top 5 Program Awards

The awards, presented to both government and industry, recognize significant systems engineering achievement by teams of industry and government personnel.

- Winners must demonstrate successful implementation of systems engineering best practices resulting in program success based on 2009 performance.
- Programs are considered for this award at any point in the programmatic life cycle.
- Successful applicants should have passed a sufficient number of internal milestones to demonstrate the impact of systems engineering practices.

Nomination packages due July 1, 2010. Programs will be notified by Sept. 1 of their selection. Awards will be presented at the annual NDIA Systems Engineering Conference, San Diego, Oct. 25-28, 2010.
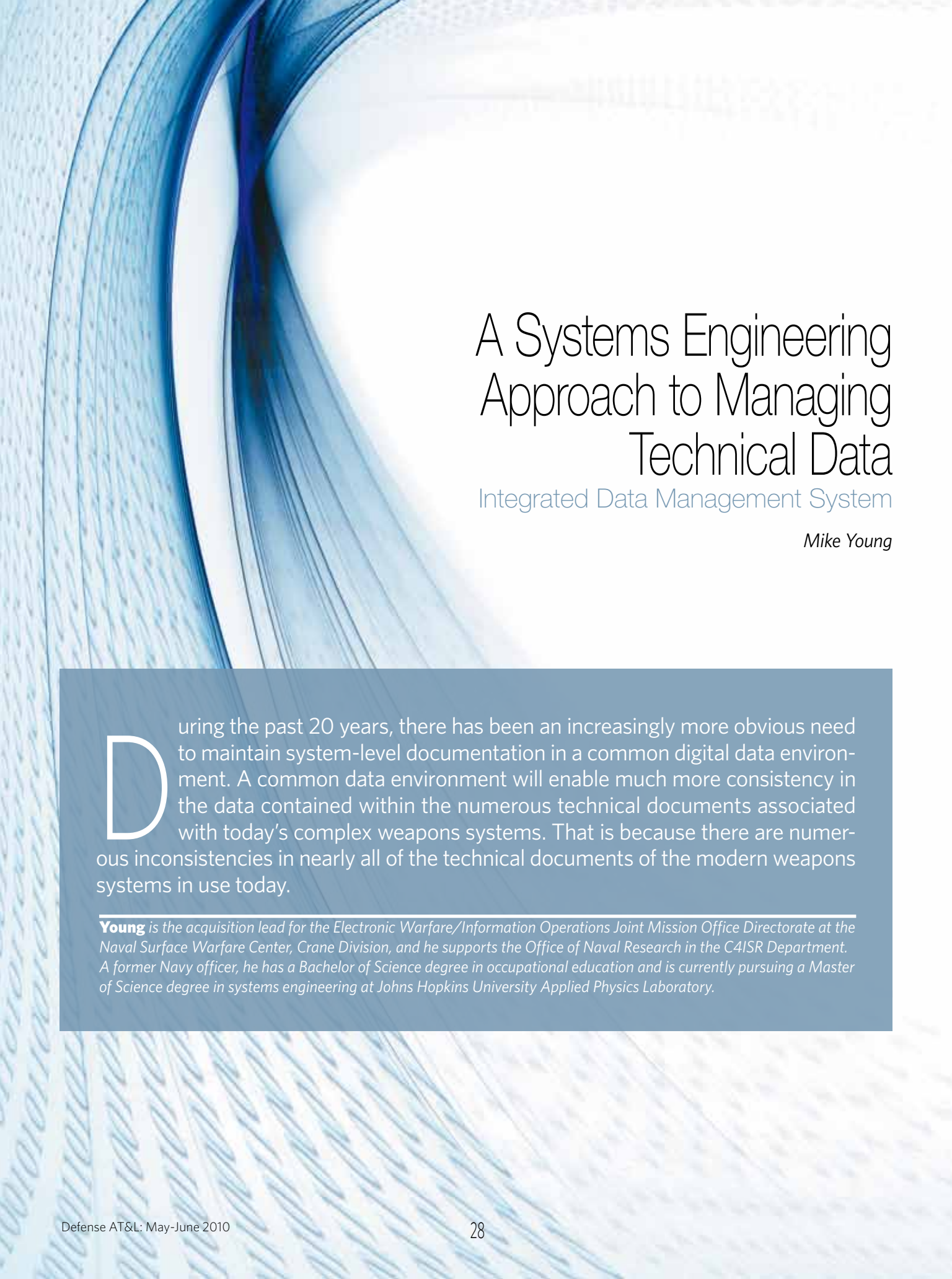
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Visit the NDIA website to download submission instructions:
www.ndia.org/divisions/divisions/SystemsEngineering/pages/awards.aspx

A Systems Engineering Approach to Managing Technical Data
Integrated Data Management System

Mike Young

D uring the past 20 years, there has been an increasingly more obvious need to maintain system-level documentation in a common digital data environment. A common data environment will enable much more consistency in the data contained within the numerous technical documents associated with today's complex weapons systems. That is because there are numerous inconsistencies in nearly all of the technical documents of the modern weapons systems in use today.

Young *is the acquisition lead for the Electronic Warfare/Information Operations Joint Mission Office Directorate at the Naval Surface Warfare Center, Crane Division, and he supports the Office of Naval Research in the C4ISR Department. A former Navy officer, he has a Bachelor of Science degree in occupational education and is currently pursuing a Master of Science degree in systems engineering at Johns Hopkins University Applied Physics Laboratory.*

A typical DoD weapons system contains technical manuals, planned maintenance system (PMS) maintenance requirement cards (MRCs), maintenance and operator training course materials, parts lists, and so on. The technical information contained within those documents is typically developed with a variety of software products. For example, most technical manuals were typically created in Adobe® FrameMaker, or Microsoft® Word, while PMS MRCs were developed in Standard Generalized Markup Language. The format of the data in a variety of technical and logistics documentation associated with a system can easily exceed 30 to 40 unique and separate data formats created by different software systems. The large variance of software programs can lead to numerous problems with skill level, expertise, licensing, compatibility, storage, etc., as well as result in inconsistent and unreliable technical data across the various documents. That significantly increases the amount of work required to research technical issues and costs the government a great deal of money each year.

Furthermore, when the weapons system is initially developed, all of the technical documentation appears to contain identical information, but in reality, there are slight differences. This variation in documentation is a result of several factors: different personnel developing different documents, different software tools, etc. Content variation can result in potentially serious conflicts in the technical data supplied to the warfighter and can result in numerous manhours wasted researching incorrect or inconsistent technical information, not to mention the potentially serious consequences of inconsistency in safety-related issues.

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Modified Waterfall Incremental Build Model
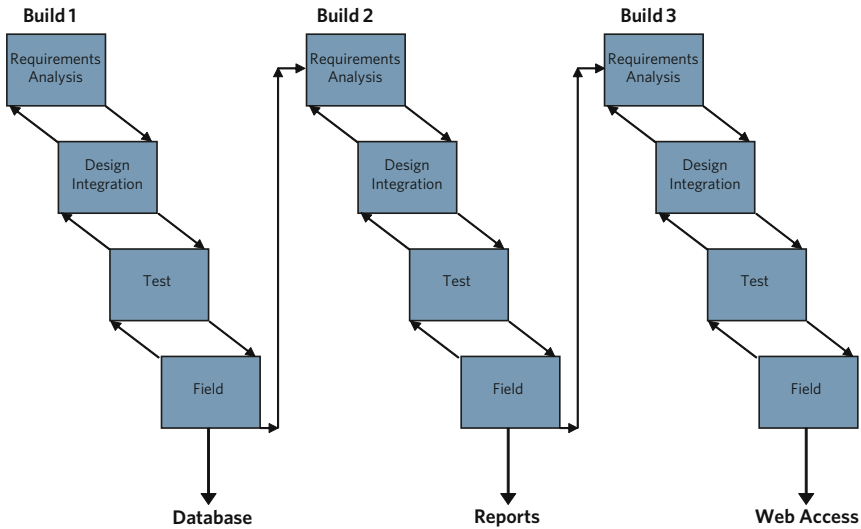
As the weapons system is supplied to the field, several different personnel will maintain the technical documentation in their native formats. As changes occur and are incorporated into the system or technical specification data is updated, the entirety of the technical documentation is not always corrected. Therefore, the technical documents often diverge further and further from each other. A quick look into the systems part ordering information will clearly illustrate the problem. Parts information is usually maintained in the technical manuals, PMS MRCs, allowance parts list, weapons systems file, training course material, user's logistics support summary, etc.; and a surprising amount of data variation currently exists in those documents. The variation is partly because technical personnel do not change the information in all related technical documents. Some of the documents had variations from the start, requiring quick and efficient data comparison between the various formats. All of that results in a potentially dangerous situation of inconsistent data for the warfighter. A more efficient manner of technical data management is required to ensure all of a system's technical data is as consistent and maintainable as possible.

Conversion to Digital

The DoD Policy for Transition to a Digital Environment mandates a DoD digital environment by the end of 2002. This started on July 2, 1997, when Deputy Secretary of Defense John P. White signed the "Policy for the Transition to a Digital Environment for Acquisition Programs." The policy directed DoD program managers to establish data management systems and digital environments that allow every activity involved with a program throughout its total life cycle to exchange data digitally. One of the essential and most data-intensive elements of the logistics portion of this digital environment is product data. Product data is the technical and management data required to field, operate, and support DoD weapons systems. Where are your programs at with accomplishing the intent of the digital data directive?

Taking the DoD digital policy to heart, a much more efficient method of developing and maintaining weapons system technical data is possible if all documents are developed in a common data environment. In such a data environment, technical data is easily stored, maintained, upgraded, and changed as required. When a technical change is made to the data within the data store, all of the references to that data are also changed. Such an environment can be efficiently created with any of the various database/data store tools commonly in use today such as Oracle®, Sybase®, etc.

With the off-the-shelf report generation tools available with most of the larger database systems, reports can be generated to provide the functionality as well as the look and feel of existing technical manuals, training course material, PMS MRCs, parts lists, etc. Since the core data comes from the same source—i.e., the common data environment—the data is fully consistent. Any required changes to existing data will be properly reflected in all documentation immediately upon incorporation of the change in the master database/data store. Users/maintainers can easily access the data via a Web interface. Since security is an issue in DoD weapon systems, extensive efforts in the areas of encryption/decryption can be applied to the data, and user access control and safeguards can be incorporated to prevent unauthorized disclosure of the data.

Systems Engineering Process

To develop an integrated data management system in the most efficient manner, a modified waterfall incremental build model, such as that depicted in the figure on this page, should be used. The actual steps in each block will be refined

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based on input and consultation with database/data stores and system technical experts.

Although the principles of systems engineering are typically applied only to a hardware development program and not to a software intensive development, there are many benefits to applying a formal systems engineering process to any system development. Systems engineering principles and methods would be applied to all aspects of the management and engineering development phases during the development of the project.

The first step in accomplishing such a data management system would be to perform a requirements analysis based on the needs and inputs from users as well as engineering, logistics, and system managers; and then accomplish interface definition and control, overall system trade studies with sensitivity analysis, and concept definition and exploration. At that point, the system would start to develop into a potentially useful product, at least from a conceptual point of view. The next application of systems engineering would be in the design and integration stage, where the project would start to resemble a real system.

The system development should be accomplished in units, which are typically the lowest software unit and contain approximately 100-200 lines of code. The units are then combined and become part of the functional modules. Those units and modules would significantly simplify the management of the project and enable more efficient debugging of any problems or abnormalities that may be encountered in the software coding portion of the design. After each unit is properly coded, the unit would be tested with other related units to ensure unit-to-unit functionality. This unit and module level management/testing of the project will enable ef-

ficient peer review of software units and proper functionality of the modules that are developed.

After all of the functional units and modules are developed, full integration development would occur. Since this is a modified waterfall incremental build, the software design and development will be developed in phases that allow increasing levels of capability to be fielded in a shorter period of time compared to a serial development process. Unit-to-unit integration would naturally lead into full integration testing to ensure all of the system requirements are fully met by the design and also to ensure the overall system performs as designed.

An Efficient System

The systems engineering concept for an integrated data management system will enable the warfighter to operate and perform maintenance on deployed systems in a much more effective and efficient manner. DoD personnel would trust the data more and would be more likely to provide meaningful input for improvements to the data as well as the integrated data management system tool. It is my desire that this article will enable more thorough research into the premise of integrated data environments as well as provide sufficient formalization of the concept to the point required to actually obtain funding to implement this type of system as a proof of concept. This system would not only help the warfighter but also help the engineering, logistics, and program management personnel as well.

The author welcomes comments and questions and can be contacted at james.m.young@navy.mil.

Improving Performance-Based Logistics

A Different Perspective

Jeff Heron

'm confused by all the often-conflicting performance-based logistics opinions I've read lately. Many of the reports I've looked at are about the state of the defense budget and the ever-increasing need for the government to reduce life cycle costs by making smarter sustainment decisions. At the same time, I've seen a rash of magazine articles

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If DoD is serious about saving money on effective life cycle product support, then it needs to consider changes in product support implementation

sociation, the Defense Acquisition University, the University of Tennessee, and the Office of the Secretary of Defense-sponsored Product Support Assessment Team. In many of those discussions, we've tried to reinvigorate, redefine, or replace PBL; but in no instance have we ever discovered a viable PBL alternative. We most often talk about PBL in terms of supporting the warfighter through equipment readiness or availability, but to take a more pragmatic approach, the foundational concept of PBL is cost-wise readiness; or more crassly put, it's all about the money.

For the contractor, the question becomes how to satisfy the required performance metrics of the contract while meeting the profit margin expectations of Wall Street. On the government side, it's a question of how the requirements of the warfighter can be met within existing budget limitations. In both instances, money is the fundamental component in the equation. That said, the purpose of this article is to offer some thoughts on how the Department of Defense can increase the scope and effectiveness of post-production sustainment through a more cooperative approach to PBL that meets the needs of both the military services and industry. The Navy is used as the primary example in this article, but most of the comments examples can apply to PBL in any of the military services.

PBL Key Attributes

PBL is not rocket science, but I've seen some very peculiar ideas promulgated about what PBL is and what it is not, so let me start by laying down a baseline definition. I know every PBL effort is different and everyone has his or her own ideas about what's best, but for the purpose of this article, a PBL is a fixed-price sustainment contract with payment linked to the attainment of specific performance metrics. Further, in order to maximize affordable readiness, a PBL must have three key attributes. Firstly, the goals of the government and the product support provider must be aligned. In other words, the government and the product support provider must approach PBL as a team sport in which they are both on the same side. If the statement of objectives calls for the delivery of fruit, it really doesn't matter how good the apples are that the product support provider delivers if the government really wanted to eat oranges. Secondly, the product support provider must be committed to continuous process improvement. If the product support provider stops focusing on process efficiency, his cost line will start rising toward his contract price and his margin disappears. Thirdly, there must be a well-defined reliability plan. Greater product reliability means fewer maintenance actions by the warfighter; lower sparing levels; and fewer returns to the product support provider, which translates into lower costs, greater margins, and potentially, gain sharing with the government. Additionally, greater reliability opens up the opportunity for the government at the next contract negotiation to choose between asking for the same readiness at a reduced contract price or higher readiness for the same price. Again, money is the fundamental component.

that weakly enumerate the virtues of PBL and simultaneously disparage it as being as outmoded as the landline phone—good in its day, but completely outclassed by the latest technology.

On the other hand, I've also read the articles, perused the Government Accountability Office reports, and seen the briefs denigrating PBL for a whole host of reasons, of which one of the most commonly cited is the lack of funding flexibility. What confuses me is that if PBL really isn't the answer, then why can't I find an article anywhere that suggests any alternative to PBL—with the exception of maintenance of the transactional status quo, which is an alternative that is no longer affordable as evidenced by years of data on operations and support cost escalation and poor performance? My confusion is generated by the thought that if the U.S. government can apply PBL to weapons system sustainment—covering depot repairs, sustaining engineering, reliability growth, configuration management, diminishing manufacturing sources and material shortages mitigation, wholesale inventory management, and even gain sharing, to name just a few of the possible options—for the same price or less than that they are already paying for annual repair transactions for the same subsystem, why would the government, or anyone else, not be a strong advocate for PBL?

I've worked with PBL and many PBL experts for a number of years. Moreover, I've been involved in PBL discussions in a variety of forums, including the Aerospace Industries As-

Another important facet of PBL to remember is that the metrics and scope of the PBL are determined by what is most important to the government at the time. The government keeps refining top-level metrics for acquisition logistics programs, with the most recent iteration being the redefinition of availability as a key performance parameter coupled with reliability and ownership cost as key system attributes. Assuming those supportability metrics can avoid being traded away during production, the future of supportability looks good. However, for programs that are already out of production, these new metrics have little impact. Fortunately, PBL can provide the needed availability, reliability, and lower ownership costs for weapons systems already in the military services, but only if the government and the product support provider have their goals aligned and are playing on the same team.

For example, the table below depicts the wide range of PBL services that exist on 25 PBL efforts with the same corporation. The chart includes PBL efforts with the Navy, Army, Marine Corps, and Air Force as well as with foreign governments. The fact that they differ so much in what they provide is reflective of the varying degrees of contract length and alignment between the government and industry. The irony in this is that the government doesn't have to pay more for those services because PBL has to pass a transactional-based business case analysis in order to be approved (at least for PBL

efforts with the Naval Inventory Control Point). On the contractor side, providing such extra services actually contributes to the product support provider's profit by increasing process efficiency and/or product reliability. In a fixed-price environment, lower repair costs lead directly to higher margins. In every case depicted, the government is getting the affordable readiness it wanted and the contractor is getting the return it wanted. Again, the key takeaway you should get from the figure is that under PBL, the services depicted in the various columns can be made available in many cases for the same price as would be paid exclusively for depot repairs under a transactional sustainment contract. Of course, this begs the question I asked earlier: Why would the government or anyone else not choose PBL as their default sustainment strategy?
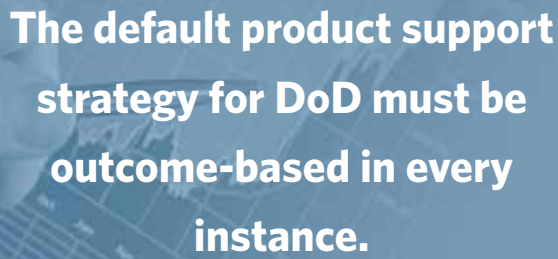
Improving PBL

All that said, I think PBL can be improved significantly by taking a closer look at how PBL is presently implemented. First, let me say that the maxim taught at the Defense Acquisition University is absolutely correct: PBL needs to be planned upfront and implemented as early in the acquisition cycle as possible. Designing reliability into the product is intuitively the easiest way to reduce life cycle costs and maximize affordable readiness. (A relatively modest investment in reliability at Milestone B can reap huge savings later in sustainment.) It also facilitates earlier implementation of PBL than is presently the norm.

Performance-Based Logistics Efforts

PBL Program	Depot Repairs	Sustainment Engineering	Reliability Growth Plan	Configuration Mgmt	FSRs	DMSMS Mitigation	Wholesale Inventory Mgmt	24/7 Hotline	SCM: Optimized Aligned	Gain Share
FLIR	X	X	X	X	X	X	X		X	X
Navigational Radar System	X	X	X	X	X	X	X	X	X	X
Radar Warning Receiver	X	X	X	X	X	X	X	X	X	
Ground Radar	X	X	X	X	X	X	X	X		
MDA Radar	X	X	X	X	X	X	X	X	X	
Target System	X	X	X	X	X		X	X	X	
Missile System	X	X	X	X		X	X	X		
FMS Airborne Radar	X	X	X	X	X	X			X	
Airborne Tactical Radar	X	X	X	X	X	X			X	
Missile	X	X	X	X		X	X		X	
Navigational Radar System	X	X	X	X	X	X			X	
Missile System	X	X		X	X		X	X	X	
Radar-Guided Gun System	X			X	X	X	X	X	X	
Non-US Training Acft	X	X		X		X	X	X	X	
FMS Missile	X	X		X		X	X	X		
FMS Anti Tank Missile	X	X		X		X	X	X		
UK Missile Systems	X	X		X	X		X			
Ship Supply Support				X			X	X	X	
FLIRs	X				X			X	X	
Communications System	X			X		X		X		
Missile System	X			X		X		X		
Ground Repairables	X			X	X			X	X	
FLIR	X			X	X		X			
FLIR	X	X			X				X	X
Fire Control System	X						X			

> **The default product support strategy for DoD must be outcome-based in every instance.**

While it seems clear that DoD can no longer afford the old paradigm that sees them buying a product for a set price and then continuing to pay the original equipment manufacturer until they get it right, the reality is that in many cases, reliability is traded away for operational performance and the PBL process is not started before the material support date is reached. At that point, the program has already gone through a period of interim contractor support, the initial spares have been bought, and the intermediate maintenance activity has been established. Starting PBL at that point is still beneficial but is akin to shutting the barn door after the horse has escaped. By the material support date, the program manager has likely bought too many spares, often in the wrong configuration; paid for more manpower and intermediate maintenance activity infrastructure than is probably needed; and is just starting to realize that there is no procurement money left in the budget for depot standup. Additionally, by that time, the complexities of modern weapons systems coupled with the intricacies of the acquisition process have probably so frustrated the program manager that he is susceptible to the allure of total platform. Platform-based PBLs certainly have arguments that can be made in their favor, but they come with pass-through fees as the price for ease of execution. Given the need for DoD to maximize every sustainment dollar spent, the program manager must assess the value provided for the convenience. As a benchmark, commercial companies like FedEx® and Southwest® Airlines that live and breathe by predictability and cost control strongly endorse PBL at the subsystem level.

Borrowing a page from the ongoing Office of the Secretary of Defense-sponsored Product Support Assessment Team effort, I believe DoD should consider the adoption of a new product support business model. The model I propose has three basic elements. Firstly, the default product support strategy for DoD must be outcome-based (PBL) in every instance. Before a program initiates any other sustainment strategy, that strategy should have to prove itself better through a rigorous analysis of alternatives and business case analysis process. I contend the opposite is true today, as transactional sustainment is the default position and PBL must pass the business case analysis before acceptance. This is much more than semantics; if PBL is DoD's preferred sustainment strategy, then why don't we treat it as the going-in position?

Next, DoD needs to be more expansive in terms of PBL coverage by investigating alternative subsystem/component groupings under a single PBL. Vertical, or platform-based, PBLs have their place, as mentioned before, but don't stop there. Why not investigate horizontal PBLs covering multiple platforms with multiple users based on technology, manufacturer, or function? This is already being done in the areas of common avionics and weapons, but I suggest a broader review would open opportunities for significant savings. Another structure to consider is an industry consortium that might roll up all government-furnished equipment on a particular platform into a thin-prime arrangement to provide the ease of management of a platform-based PBL with reasonable pass-through fees.

The third element of my proposed model is that regardless of whether or not Title 10 considerations for core or 50-50 exist, all DoD PBLs should include public-private partnerships as part and parcel of the depot support solution, wherever feasible and practical. Here again, a business case analysis should drive the decision, as organic capability might not be affordable for commercial off-the-shelf items or items commonly repaired at multiple commercial locations. Included in this last element—my most aggressive suggestion—is that DoD should require depot standup concurrent with initial operational capability. Such a radical move would reverse the initial operational capability, material support date, and Navy support date flow; but would yield significant savings through the reduction of interim contractor support, more accurate spares buys, reduced intermediate maintenance activity personnel requirements, and better selection of test equipment. That may require some modifications to Title 10 in the area of depot support equipment ownership and will certainly change the priority the program manager assigns to depot standup, but it is well worth the effort. Interestingly, the last point ties the other elements of my model together in that starting PBL at initial operational capability, with a mandated public-private partnership where economically feasible, transfers design stability risk to the original equipment manufacturer and provides DoD all the benefits of a concurrent initial operational capability/Navy support date previously mentioned. Too often we find post-milestone decision that we do not have depot capability, and necessary funds have been spent elsewhere. Maintaining the status quo may be the best way to avoid rocking the boat, but it won't provide the organic capability and savings in sustainment dollars that DoD needs.

The bottom line is that it's all about the money, and in today's budget environment, incremental improvement only leads to bankruptcy, not greatness. If DoD is serious about saving money on effective life cycle product support, then it needs to consider the changes in product support implementation outlined in this article.

The author appreciates the contributions from Aerospace Industries Association and others to this article.

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Acquisition's Undiscovered Resource

The Air National Guard

Todd M. Johnson

If you are a program manager involved in acquisition and implementation of aircraft modifications, you already know that acquiring the parts for your weapons platform is only half of the battle. When your kits are stacked up in the warehouse, you still need touch labor to put that capability into the warfighter's hands. Just like the acquisition of the parts needed, fiscal and logistical constraints will also hamper your installation efforts. Those constraints can often drive the installation schedule years into the future. That increases program cost through inflation, and as fast as technology changes, you might end up installing outdated and unwanted technology. Once your modification has become overcome by events, you are faced with wasting tax dollars no matter what course of action you take. The government has to honor the contract or pay an early termination fee, or you can continue installing an outdated system. Adding insult to injury, choosing that direction leads to a decrease in aircraft availability with nothing gained.

The Options

In that situation, the program manager currently has three common installation options:

Option one: Let the field install your modification by way of a field-level time compliance technical order. That's a great option if your modification meets the criteria of taking less than 25 manhours from start to finish. If it does not, the regulations say you need to find another way. You might be able to get a waiver from your major command if it exceeds 25 hours, but with active-duty units already stretched thin, it will be very difficult to get the commanding organization to agree.

Johnson *is a modifications program manager for E-3 AWACS aircraft. He previously worked as an equipment specialist and program manager for KC-135 aircraft modifications.*

KC - 135 Stratotanker under maintenance

Option two: Designate your time compliance technical order as a depot-level installation. That means that your modification would be installed at a depot facility, usually during the course of programmed depot maintenance. The problem with that method is programmed depot maintenance labor rates are usually expensive and will destroy your schedule due to the standard aircraft cycle time. An example would be the KC-135 Stratotanker platform, which undergoes programmed depot maintenance on a five-year cycle. That means completing all the aircraft in your fleet will take five years. Your program then risks facing inflation and obsolescence. The method also does nothing to help the warfighters, who may desperately need that particular capability in their weapons system right away.

Option three: Improve the programmed depot maintenance timeline by using a contractor or depot-level field team. The field team can either travel from base to base installing the modification or induct aircraft into a centralized location(s) for the effort. Once again, the authority is by depot-level time compliance technical order. Using contractors means labor rates are subject to source selection and the best-negotiated rate. Even if you find a labor rate that your program can afford, you still need a support infrastructure. Aircraft command a lot of support in paperwork, quality control, ground handling, unscheduled maintenance, and a myriad of other items required for safe flight operations. All of those items must be addressed and may be outside the scope of contractor support—or your budget.

Another Option

That leads me to the reason for this article, which is another option for program managers. The Air National Guard (ANG) is a valuable resource that is probably based some-

where close to your area of operation. Even if it is not close to home, it does not mean that you cannot tap into this remarkable resource.

I originally learned about the ANG from my work as an equipment specialist and later as the program manager for a modification to the KC-135 Stratotanker. The modification was, and is, the number one priority for Air Mobility Command. In the beginning, active-duty members could not support the program modification due to mission requirements. Programmed depot maintenance was not a viable option because of the cost and length of time it would take to complete the effort. The modification, known as the control column actuated brake, needed to be installed as soon as reasonably possible because of its safety implications.

They say that necessity is the mother of all invention, and so it was with our search to find a way to get the program into the installation phase. In our quest to find support that met our budget and timeline, we turned to the ANG to host and support our modification, even though the actual installation would be accomplished by contractor technicians. Not only did we need the facilities from which to operate, but we needed ground handlers, functional check flight pilots, quality inspectors, supply and technical orders specialists, and even a government flight representative.

We were able to tap into ANG resources at Meridian, Miss.; Spokane, Wash.; and Columbus, Ohio. The ANG's willingness to help allowed us to run three simultaneous installation lines, all within our budget and time constraints. The ANG is a large part of why the control column actuated brake program met its goals for cost, schedule, and performance throughout my tenure with the program. The abilities of

the ANG should not be ignored by anyone contemplating a modification effort.

How You Can Benefit

The ANG can offer talented professionals with years of aircraft experience. They know the Air Force system and have the infrastructure to support almost any type of effort from small to large. Another highly desirable asset the ANG maintains is backshop facilities for manufacturing parts, which the active-duty side of the Air Force no longer has. In one instance, we needed gust locks that were not part of the Air Force inventory. The guard was able to help our engineers with a design, and then built enough of them on location to supply all three of our installation sites.

The ANG can do more than just provide facilities and touch labor. The next logical step for me as a program manager was to try to utilize their backshop capabilities for other modifications. As they had the means to produce certain products such as sheet metal items, I engaged them about another project I was involved in. I asked the ANG to provide me with an estimate for building a sheet metal shield to protect expensive black boxes from damage by hydraulic fluid. In no time, they were able to produce the prototype, fit test it, and aid in the design fit problems encountered. The

estimate given to me included building and shipping all of the kits direct to the users. As a result, I could move my whole schedule to the left and free up an already overburdened stock system.

Funding an ANG project is also less complex because no contract is required; you can use a memorandum of agreement (MOA) and pay for services via an AF Form 616 or DD Form 448, Military Interdepartmental Purchase Request. Removing contracting from the process also reduces the time to complete a modification and frees up contracting resources to work on larger projects instead of minor modifications. You might ask the question, "What about the 50/50 rule?" The answer is that the ANG is considered an organic source and thus retains core capability.

Planning to Use ANG

If you are in the aircraft modification business, you need to consider the ANG option as a legitimate method to save money and time. For program managers, that is what it is all about.

Take some time to learn and understand the capabilities of the ANG, then you can determine if your modification is a good match. In my experience, mechanical and sheet metal

type modifications work out just fine. That is not to say that an avionics or more complex modification is out of the question; it just requires more planning to work out all of the details.

If things look like a good match, it is time to get down to business and get the cost figured out, along with developing a schedule and the details you want to put into your MOA. Build your MOA in conjunction with all the stakeholders. That will ensure that it sails through coordination with a minimum number of changes. Your MOA does not have to be a huge document, but depending on your requirements, you need to make sure that all of the basics are covered. A basic checklist should include the responsibilities of each stakeholder. An example would be that the major command furnishes the funding and how it is going to be distributed. Other important items would include services provided, cost, and a schedule.

How ANG Benefits

In the course of reading this article, you might have asked yourself, "What's in it for the guard?" The answer would include many things. The funds the guard receives help bolster their capabilities and workforce. That translates to a stronger unit, which in time of need, can better support the local community in case of natural disaster or national emergency.

The Air National Guard can offer talented professionals with years of aircraft experience.

In the case of installing the control column actuated brake, the contractor doing the actual installation hired local personnel, which created jobs in that location. That is another benefit to using the ANG.

I am not familiar with the other branches of the Service, but the possibility exists that their National Guard contingents could be also called upon for help. It deserves some consideration in these times of financial and labor constraints that all programs and program managers face.

The author welcomes comments and questions and can be contacted at todd.m.johnson@tinker.af.mil.

KC - 135 Stratotankers ready for takeoff

Acquisition Truths from the Trenches

Capt. Tim Troup, USAF

Those in the acquisition career field understand that cost, schedule, and performance are keys to success. That being said, many in the acquisition force fail to realize the triad can be achieved with speed and agility. Rapid, agile acquisition is a result of aggressive, smart risk management and creative problem solving, and many applaud out-of-the-box thinking. If we make the assumption, however, that there is a "box" of acceptable answers, the number of possible solutions has already been limited. The ongoing fight we are engaged in is real, but we still struggle to get the user what he/she needs in a timely manner.

More often than not, the acquisition community is delivering urgently needed solutions late to the game. To keep pace with modern warfare's unconventional form, we must embrace unconventional acquisition practices. When the Department of Defense has been pressured to deliver something quickly, such as Mine Resistant Ambush Protected vehicles for Iraq and Afghanistan, we suspend

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the rules, set up a fast track path, and push aside the bureaucracy; however, acquisition rules don't always need to be bent to deliver products quickly.

The New Mindset

I spent the summer of 2008 with the U.S. Special Operations Command working within the Program Executive Office for Fixed Wing in a mentoring program developed there over the last three years. The mentoring program came about because leadership in USSOCOM saw capability gaps in DoD's ability to rapidly acquire what the warfighters needed. USSOCOM leadership selects junior force acquisition personnel to deploy to USSOCOM and provide wartime acquisition support. The deployers, known as "ghosts," provide urgent acquisitions support to combat operations. The ghosts also forward deploy to support combat operations as a liaison officer. Lastly, the ghosts receive unique mentoring opportunities from special operations forces acquisition and operational leaders. The mentoring program leads to operationally oriented acquisition officers.

In my time with PEO-FW, I learned that program organization representatives had developed and followed a few acquisition truths that result in the fielding of critical capability in a rapid manner, and they are currently using those truths to mentor officers in acquisition career fields for implementation at their home base. The truths:

- Fast does not equal undisciplined.
- More bureaucracy does not ensure a better product.
- Risk must be managed, not avoided.
- Faster does not have to increase cost/risk.
- Competition can be done quickly.
- Unconventional thinking is an enabler.
- Credibility enables freedom of action.

The following sections discuss lessons learned from working with PEO-FW and following the acquisition truths it has established.

Stronger Communication

USSOCOM fundamentally believes that acquisition can quickly provide warfighters what they need, when they ask for it—and the command seeks the path that can best meet those needs. Now, you may think that USSOCOM does not have to follow the acquisition regulations and directives like the rest of the military, but that is not true. USSOCOM follows DoD 5000 series policy, with the same funding rules and new program starting rules as standard acquisition programs. One of USSOCOM fixed wing programs' biggest strengths is that program representatives listen and respond to the user's needs. Because of the open and frank communication with the users early in the acquisition life cycle and because of the program's ability to set achievable goals, stronger expectations are set both with the acquirer and user.

Additionally, because of the strong communication links between the user and acquirer, decisions can be made much faster, giving both parties an immediate determination of success or failure and allowing them to re-focus immediately and strike from another angle. As an acquisition corps, we need to be involved in a culture of success with the operators. If we don't understand how and why they do what they do, we will never identify with the mission and we will fail every time. Taking the time to learn what the operator is doing and needs is one of the reasons normal acquisitions chains are so long and cumbersome. Because special operations forces acquisition representatives know the key pieces, they are able to field support in days and months. A good example is the defensive gun on the CV-22; it only took six weeks from initiation to competitive contract award, including following all the acquisition rules.

The "R" Word

The acquisition community in general has lost the edge on how we deal and cope with risk. We have multiple software tools that we use to build glossy charts showing what we perceive as risks to our program. More than likely, the risks we put on the glossy chart will never occur because we have identified them. Instead, what we need to do as acquisition professionals is simple:

- Anticipate problems. Look daily at risks that may start growing like barnacles on the bottom of a ship.
- Accept the underlying facts of those risks, and some of those risks are part of the bureaucratic process from which we cannot escape.
- See the bigger picture; i.e., where does my program fit into the rest of the war machine? Knowing that will help us make better decisions.
- Handle one thing at a time, but understand that it is OK to have many things to manage on your plate.
- Don't give up on the goal when the chips are down. Look beyond your current scope. Develop a process—look for trouble, develop a method to identify what are the issues, what has already happened, what are the options, and surround yourself with problem solvers and those who can compensate for your own and your team's weaknesses.

Accepting Responsibility

There are those who say you can't fix the acquisition system due to all the political tentacles that are always changing procedures and processes. That is far from true. In fiscal year 2009, the USSOCOM fixed wing acquisition enterprise (including supporting service program offices) delivered more than 36 aircraft and 150-plus special munitions, put 37 new MC-130Js on contract, and modified every other aircraft in the special operations forces fixed wing portfolio (CV-22, MC-130s, AC-130s). That and more was accomplished with a very small, focused team.

What does USSOCOM do that is different? Firstly, the government acquirers accept responsibility for the outcome—many acquisition organizations pay contractors to manage risk for them, but special operations forces acquirers integrate the activities, not the contractor. Secondly, government acquirers retain the authority over the program and do not abdicate it to the contractors. As a result, they can provide a rapid solution versus the perfect solution.

Some examples of providing a rapid solution include a laser designating device fielded in seven days; a small, unmanned air vehicle fielded in 14 weeks; a heavily modified King Air 350 bought, modified, and fielded to combat operations in less than six months (and that fleet of nine aircraft flew 10,000 hours in 2009); and a new weapons development program that went from initiation to delivery in just under one year and was the Office of the Secretary of Defense 2007 Advanced Concept Technology Demonstrations award winner. Sometimes a product is needed that will only be used for six months or a year. The current fight transforms so rapidly that often "throw-away" systems better meet the user's need. (Think of the World War II cheap bombers, fighters, and the Liberty Ships.) And sometimes, a product needs to last for 25 years. Either way, the core processes are the same:

- Use unconventional thinking—a must!—to get tools to the warfighter quickly.
- Know and follow the rules (ethically and legally).
- Encourage out-of-the-box thinking.
- Ensure your team has the expert for the task at hand.
- Keep the team small.

Rapid decision making and access to the decision maker are huge enablers to success. In most cases, the longer the approval chain, the more convoluted the requirement gets. Shorter chains of command have always empowered teams, with leaders enabling them to make decisions because they have the latitude and because they wholly understand the

user's needs. This is especially true at USSOCOM, where decisions are pushed to the lowest levels of execution.

A New Acquisition Structure

Innovative thinking within PEO-FW over the last year has produced a new acquisition organization: the Joint Acquisition Task Force. Using a bedrock of unconventional thinking and approaches, risk taking, and flexible equipping, the JATF has raised a formidable team that has had immediate and substantial successes. The JATF has command and control over numerous combat acquisition detachments (CAD) that are pulled from within DoD's centers of excellence. JATF team members follow a unity of effort and a unity of command construct, whereas the JATF commander has oversight of all the CADs and the CADs work toward the same goal, although they all have a different piece of the puzzle. For example, the U.S. Navy Dahlgren CAD builds software packages for a fire control system and the CAD at Wright-Patterson Air Force Base buys consoles and guns for gunships—both work closely together, but they have different responsibilities. The CADs convene regularly to ensure they are all on track and not crossing paths. That ensures that they don't have to back up and fix something later.

A key difference between the JATF construct and other acquisition organizations is that layers of command structure have been removed and the JATF commander has direct contact with the CADs. This is proving to be a game-changer. Force members are developing and producing most of the hardware from available resources within the government, and the government, not a contractor, integrates the activities. Another core attribute of the JATF is that the CADs are not assigned to the task force, but they have a common understanding of the objectives and the combatant commander's intent. Employing the unity of effort cuts out any waste and ensures each task is solely focused while the

unity of command cuts out the layers embedded in normal chains of command within the military.

The construct of the CADs replicates the U.S. Army Special Operations Command operational detachment philosophy in which a detachment consists of numerous members who have a specific function specialty on the team but conduct cross-training to be competent at each other's positions. Operational detachments succeed because the members understand the mission, constraints, and individual area of operations before the task begins. The JATF remains as the key leadership cell, and the CADs expand and contract as needed to help the JATF fulfill the mission at hand.

Working Together

Acquisition corps members need to focus, especially in light of the shrinking military budget, upon the area of jointness, both within the DoD spectrum and with U.S. allies. Forging ahead with multiple organizations can be painful, but when done well, it can leverage amazing results. An example of this is the RC-26 program managed at USSOCOM, currently fielded in Operation Iraqi Freedom, which has nine different government agencies and industry involved in management and execution.

Collaboration of acquisition professionals and industry is necessary to ensure we are providing the best solution. We need to throw that box away and start coming up with innovative solutions. Having a core set of processes and pro-

cedures that allows for ebbs and flows will enable credibility within acquisition and credibility equals freedom of action. Some further tips for better collaboration:
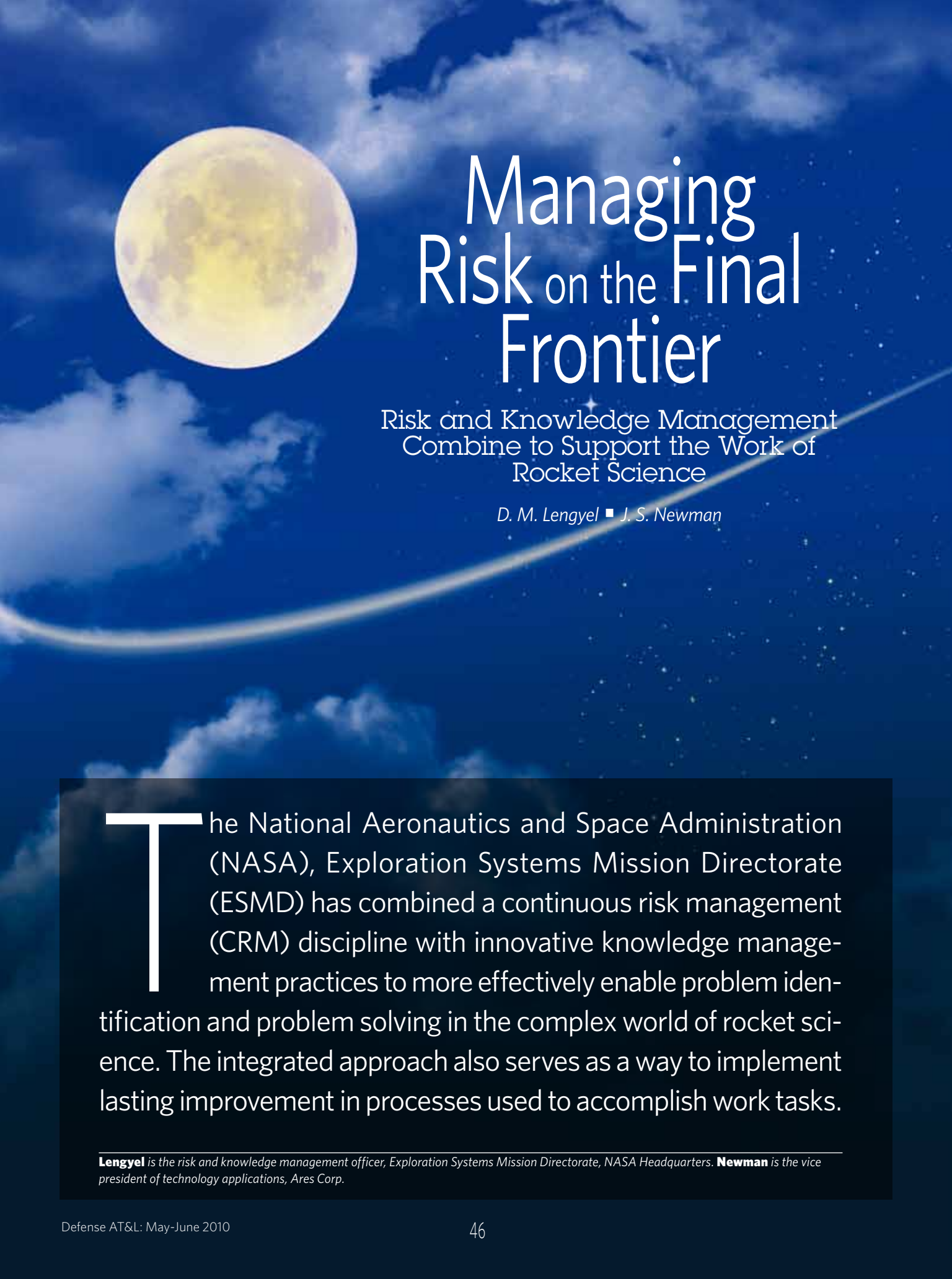
- Credibility does enable freedom to do your job (and vice versa).
- Be upfront with your chain (up/down/lateral).
- You can lead and affect change from the middle.
- Information is key; everyone has a different ability to handle it though.
- Know when/how to call it what it is.
- Equipping the fight on time can be as important as the fight itself.
- Closely linked operations/acquisition teams rapidly deliver combat capability.

We in the acquisition community are the gatekeepers for our nation's survival. The warfighter cannot do his/her job effectively and win the next battle by shear wit and talent alone. How we do our job as an acquisition corps now and in the future has a bigger effect on the survival of our nation than many realize.

The author welcomes comments and questions and can be contacted at timothy.troup@majorsfield.af.mil.

Managing Risk on the Final Frontier
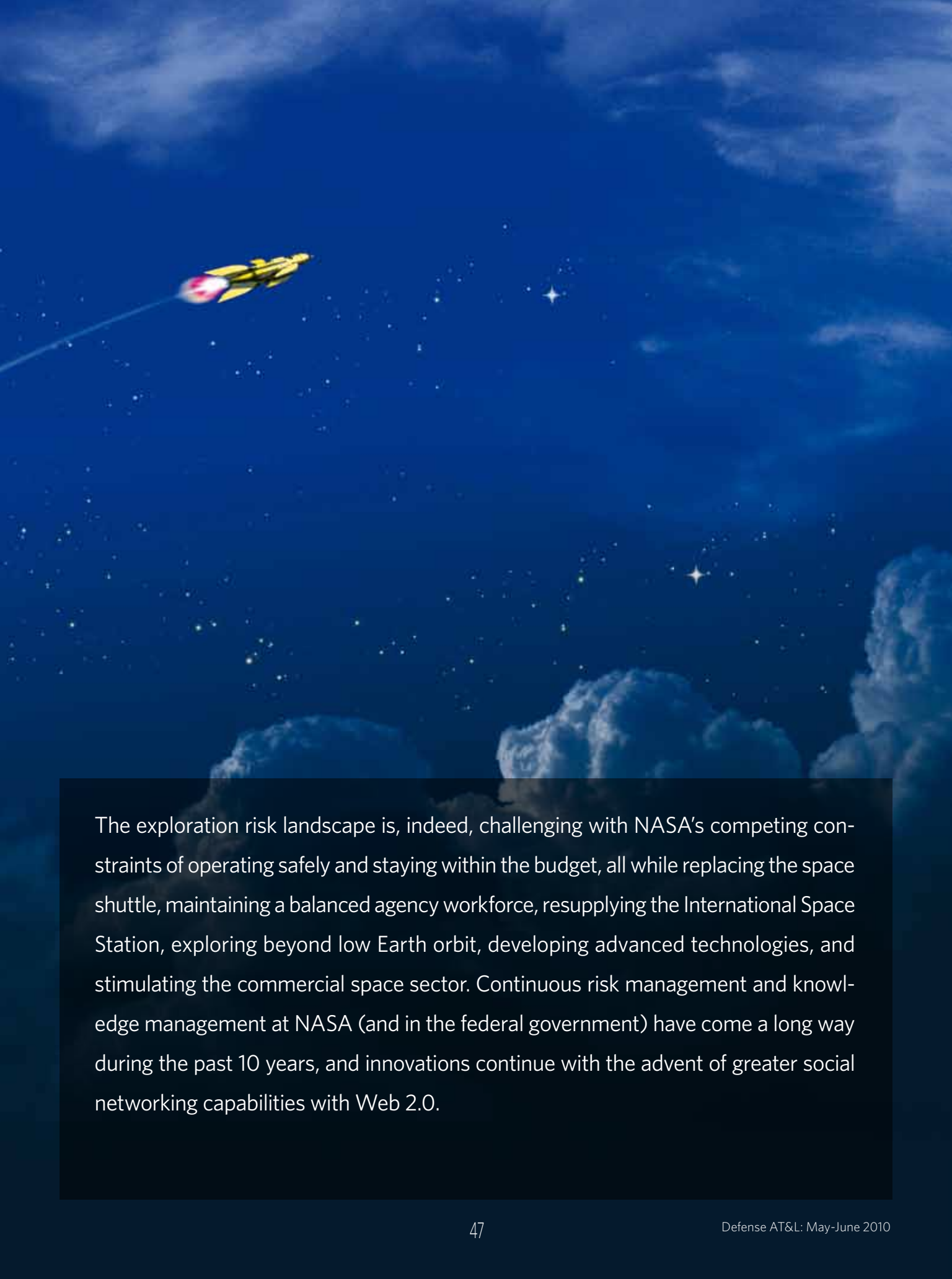
Risk and Knowledge Management Combine to Support the Work of Rocket Science

D. M. Lengyel ▪ J. S. Newman

The National Aeronautics and Space Administration (NASA), Exploration Systems Mission Directorate (ESMD) has combined a continuous risk management (CRM) discipline with innovative knowledge management practices to more effectively enable problem identification and problem solving in the complex world of rocket science. The integrated approach also serves as a way to implement lasting improvement in processes used to accomplish work tasks.

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The exploration risk landscape is, indeed, challenging with NASA's competing constraints of operating safely and staying within the budget, all while replacing the space shuttle, maintaining a balanced agency workforce, resupplying the International Space Station, exploring beyond low Earth orbit, developing advanced technologies, and stimulating the commercial space sector. Continuous risk management and knowledge management at NASA (and in the federal government) have come a long way during the past 10 years, and innovations continue with the advent of greater social networking capabilities with Web 2.0.

Figure 1. IRKM Elements

- Process 2.0
- Continuous Risk Management
- Knowledge Capture and Transfer
- Knowledge-Based Risks
- Wiki-Enabled Teams
- Risk Management Case Studies
- Decision Support
- Riskapedia
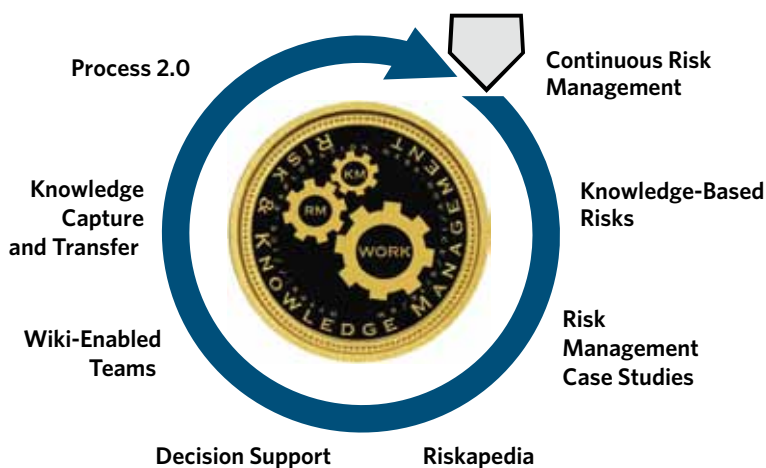
The Integrated Risk and Knowledge Management System

ESMD's Integrated Risk and Knowledge Management (IRKM) System was initiated in 2006. The foundation of the system is CRM, a technical management process that is part of the systems engineering discipline. CRM requires an iterative evaluation of events that could prevent you from meeting your objectives coupled with proactive implementation of measures to control or mitigate those risks. An important and novel aspect of the IRKM approach is using risk records resulting from the CRM process to initiate an assessment of what knowledge to transfer to risk owners to help them solve their problem, then following up to capture the actual strategy or measures used to mitigate the risk. Risk records used in this fashion provide a "cueing function" similar to an aircraft sensor cueing a weapons system sensor. In the IRKM System, CRM informs knowledge management, and knowledge management becomes the enabler of CRM.

> **ESMD uses an enterprise risk management approach and a common framework for identifying, analyzing, communicating, and managing risks for the directorate and its performing organizations.**

The second key concept of the IRKM System is work process improvement. Knowledge management (KM) practices enable ESMD programs to effectively reflect on process performance and provide a structure for process optimization. Risk finds a breeding ground in less-than-adequate process performance whether they are business, engineering, or technical management-oriented processes. To address those risks head-on requires using one or more KM practices or interventions. KM enhances the risk management process, which then helps personnel work more effectively. Hence, the interlocking concepts of risk management—work process optimization and knowledge management—are tightly coupled and mutually supportive. The following paragraphs provide a quick look at key elements of the system. As shown in Figure 1, the IRKM process flows from the domain of continuous risk management (home plate) and notionally moves around the bases.

Continuous Risk Management

CRM is an iterative process that identifies, analyzes, plans, tracks, controls, communicates, and documents risk through all life cycle phases of an organization's product developments. ESMD uses an enterprise risk management approach and a common framework for identifying, analyzing, communicating, and managing risks for the directorate and its performing organizations. Risks are communicated vertically through a well-defined escalation process, while horizontal integration occurs through a multi-tiered risk management working group and board structure. This network of risk managers is also used to communicate lessons learned and best practices—referred to as a "central nervous system" for information flow that is critical for knowledge sharing. Establishing a robust CRM process must be accomplished first as it provides the foundation of the entire IRKM system.

Knowledge-Based Risks

ESMD risk records provide the context for knowledge-based risks—Web-based, multi-media knowledge bundles that provide users with expert advice on risk control and mitigation strategies for specific technical risks. ESMD defines a knowledge-based risk as a risk record, with associated knowledge artifacts, that provides a storytelling narrative of how the risk was mitigated and what worked or did not work. A knowledge-based risk is also a means of transferring knowledge within the CRM process. As key risks are mitigated, particularly risks that are likely to recur across other programs in ESMD, knowledge is captured and transferred. Knowledge-based risks identify the effectiveness of mitigation activities, specifically in terms of cost, schedule, and technical performance. Instead of a "collect, store, and ignore" approach, knowledge-based risks form an active collection of lessons learned that are continually reused and updated.

Examples of knowledge-based topics seen in NASA include composite overwrap pressure vessels (lightweight storage vessels that require careful handling and are a potential hazard); nutation time constant (sloshing propellant during coast phase of launch); tin whiskers (metallic crystal growth on circuit boards); and EVA gloves (damage to spacesuit gloves during extra-vehicular activity).

Riskapedia

The Riskapedia wiki space is intended to assist ESMD programs, projects, managers, and workers in implementing life cycle risk management practices and discipline. Riskapedia provides extensive content (tools, techniques, best practices, videos, and lessons learned) addressing the fundamental "blocking and tackling skills" of risk management: risk identification, risk assessment, and risk control and mitigation planning. The resource is a "hard hat area" that is intended to be under construction for life. The space has been populated with expert-developed content that is intended to evolve over time as users and contributing editors engage in ongoing construction of subject matter articles. Riskapedia is all about user interaction, conversation, evolution, and, ultimately, the accomplishment of work. Users have the opportunity to rate and discuss content, provide or author content (as a contributing editor), ask questions of experts, and use content in the performance of work and the management of risks.

Riskapedia is divided into several sections. The Risk Identification section provides convenient checklists for identifying typical system, programmatic, and integration risks. The Risk Assessment section contains qualitative and quantitative tools and methodologies for analyzing, understanding, and communicating risks. Lastly, the Control and Mitigation section provides expert knowledge and guidance for mitigating and controlling risk in specific areas—and this section is structured very much like the Defense Acquisition University's ACQuipedia toolkit.

Risk Management Case Studies

ESMD risk records illuminate top engineering management and technical issues. Risk management case studies provide training and insight into how similar problems have been addressed in past NASA programs. Each case is structured to highlight key transferrable aspects of risk management. Transferrable principles include risk identification, evaluation, and mitigation planning. The proper application of risk management principles can help manage life cycle costs, development schedules, and technical scope, resulting in safer and more reliable systems for NASA's future programs. Our first case study addressed the Space Shuttle Program's Super Lightweight Tank development. Two follow-on cases now in development examine test and verification management approaches employed on the International Space Station and Space Shuttle Return-to-Flight management and technical challenges. Looking into the future, engineers will face similar risks. Examining the critical thinking that made

> **The ESMD wiki environment enables horizontal communication, collaboration, and knowledge sharing across the ESMD directorate.**

past programs successful will hopefully enhance the technical curiosity of engineers developing future space systems and make their programs equally robust.

Process 2.0

The IRKM System also has an important work-process-assist element called Process 2.0, or P2.0, which is in part modeled on the U.S. Army after-action review process. P2.0s are process-focused, collegial, structured reflection events. There has been huge demand for the P2.0 events, which assist teams in examining all aspects of a given process, including stakeholders, inputs, outputs, and products. P2.0 events use critical process mapping, structured brainstorming techniques, and process failure modes and effects analysis to identify and address work process issues. As an option, P2.0 users can take advantage of a Web-based collaboration tool suite—also used by DAU to support various projects. The tool provides a simple-to-use information capture capability that increases the volume and speed of idea capture and also supports alternative analysis. Most important, the P2.0 method demands and enforces disciplined thinking to drive out actionable process improvements for the team. P2.0s have been used to assist a diverse set of team processes ranging from vibro-acoustic coupled-loads analysis, to the agency independent assessment processes, to a simple integration meeting gone awry. In every case, the result has been rapid, transparent, team-authored process improvement.

Knowledge Capture and Transfer

Knowledge capture and transfer activities are designed to document project execution lessons learned and best practices in a contextual manner using a conversation-based format. While overlapping in some respects, knowledge capture and transfer differs from P2.0 in that it focuses on project execution rather than recurrent process implementation. Knowledge capture and transfer is an abrupt departure from the notion of lessons-learned databases that often have been hard to use, typically fragment the story, and most regrettably, lack context. Knowledge capture and transfer also rejects the notion of asking participants to fill out questionnaires—something no one enjoys doing. Rather, knowledge capture

and transfer uses the most natural modality—conversation, but carefully structured and controlled conversation. Project risk records are used to guide the initial interviews. A thematic framework is evolved to identify key issue areas and communicate them in an issue/opportunity fishbone diagram similar to that shown in Figure 2.

Wiki implementation is supported by rapid business process analysis to assist in developing the team charter, identifying stakeholder membership, and refining the knowledge architecture. The wiki provides teams an easy-to-use, flexible interface to collaborate on documents, conduct discussions, manage calendars, locate information, and, most important, work more effectively.

Figure 2. Aggregation of Issues/Opportunities for Improvement

Decision Support

Decision-support services include training teams in developing decision data packages (e.g., rationale, cost and schedule risk analysis, tradeoff analysis, and other supporting documentation) necessary to conduct formal analysis of alternatives and/or successfully meet the requirements of milestone reviews and/or decision forums (boards and panels). In addition, decision-support activities include training and mentoring in specific tools and methods to aid the decision process, including uncertainty modeling, expert elicitation, analytical hierarchy process, and other methods similar to those contained in DAU's Program Managers e-Tool Kit. Finally, ESMD is developing a cadre of trained facilitators to assist teams in using Web-based decision-support technology to support team brainstorming, prioritization, and alternative analysis.

Individual issues are synopsized and aggregated, and a composite analysis is provided. Results are rapidly provided to stakeholders using a variety of communication modes, including briefings, design review checklists, peer assists, knowledge cafes (small group brainstorming), and video interviews. An edited report is also developed as an archive and made available electronically to management.

Wiki-Enabled Teams

The ESMD wiki environment enables horizontal communication, collaboration, and knowledge sharing across the ESMD directorate. More than 350 wikis provide a multi-functional tool-set to assist ESMD teams in accomplishing work. An important part of exploiting the wiki technology has been helping teams critically examine their work processes and information architecture, which is then mapped into the tool.

Applicability to Other Organizations

The IRKM System continues to evolve and innovate to facilitate integration, collaboration, and effective work-process implementation across the complex and evolving ESMD enterprise. The fundamental concepts and approach have been broadly scalable within ESMD's diverse work processes (e.g., budget analysis, design and systems engineering, operations planning) and, indeed, could be applied across (or within) any government, commercial, or academic enterprise.

The Story is Telling

Simplicity is Complicated

Christopher R. Paparone

Our bosses seem to want us to make things simpler— "Put this in simpler terms;" "Make the Microsoft® PowerPoint slide more readable;" "Put the bottom line upfront;" and "Write a one-page executive summary." All things we've heard before. Interestingly, simplicity is still vaunted as one of the enduring principles of war; yet famous 18th century theorist Carl Von Clausewitz warned us that in war, the simplest things—like walking—sometimes cannot be performed well—like while walking in water. Why is making things simpler so difficult?

Paparone is an associate professor in the Army Command and General Staff College's Department of Logistics and Resource Operations.

Perhaps the "simple" answer is that simplicity is a cultural preference, not a universal goal. Contemporary philosopher Nicholas Rescher in his book *Philosophical Reasoning* captured this idea much more eloquently: "... simplicity is not an inevitable hallmark of truth ... but merely a methodological tool of inquiry. ... We need not certainly presuppose that the world somehow is systematic (simple, uniform, and the like) to validate our penchant for the systematicity of our cognitive commitments." In other words, in the defense community, we believe that complexity is a temporary state of affairs that will become understandable when we can figure out a way to model it in a simpler way. Yet we tend to under-model a situation to the point where we lose the sense of complexity that we knew the situation merited. The fallacy of valuing simplicity is that it always under-appreciates reality. So why do we persist?

Our Need for Analysis

One explanation is that our infatuation with simplicity evolved from our early 20th century infatuation with analysis, epitomized by the creator of "scientific management" Frederick Taylor and his ideological quest for the engineering of work. Analysis literally means to break up the whole into component parts and assume that by examining the simpler pieces, one can understand the whole. Taylor and his loyal followers theorized that all work can be broken up into simpler, measureable activities. When properly analyzed, those activities can be controlled to produce outputs more efficiently, and these methods can be scientifically replicated across all business and public enterprises. Taylorism (linked closely to the McNamara-era of defense managerialism) is very much alive in the Department of Defense today, exemplified by these artifacts:

- The influence of the operations research and systems analysis community
- The wide use of operations research and systems analysis-style decision-making models (such as planning, programming, budget, and execution; joint operations planning process; and the Joint Capabilities Integration and Development System)
- The doctrinal analyses of the three levels of war (strategic, operational, and tactical)
- The publication of analytic products such as the Universal Joint Task List (a list of hundreds of "pre-engineered" tasks and standards of performance in military operations)
- The hierarchical training models that implement the Universal Joint Task List
- The use of scientific methods to produce joint concepts, experimentation, and technique
- Conceiving of the administration of war-making as a functional construct of doctrine, organization, training, materiel, leadership, personnel, and facilities
- Conceiving of joint operations as a functional construct of its components: command and control, intelligence, fires, movement and maneuver, protection, and sustainment.

(Note: For those readers interested in the history of Taylorism, Judith A. Merkle superbly documented the story in her 1980 book *Management and Ideology: The Legacy of the International Scientific Movement*.)

What should become apparent (and this is the central argument in this essay) is that we in DoD have a cultural propensity for simplification reinforced with an affection for analysis. Defense professionals may counter with, "Well, then, smart guy, if we don't do analytics, what are we supposed to do?" The answer is not to throw away simplicity and analysis; rather, subordinate this simple-analytic paradigm to a broadened philosophy that widens the sense of being and considers other forms of knowledge creation, such as subjective-contextualization.

Subjective-Contextualization

The ontology of subjectivism sees man as a socially connected, communal being that exists only in the context of a society. Humans relate along the journey of life and create their worldview along the way; in other words, people socialize. In fact, to help the process of socialization along, they together invent and use words (i.e., create context) that begin with the letters "c" and "o." Words like conflict, commune, consensus, communicate, combine, conversation, collective, cohort, community, coalition, collaborate, coordinate, cooperate, and coexist are important in describing a being in relation to others. Finding methods to make sense of the world is a group undertaking. Life's strategies to communicate about the world and its complexities are richly descriptive and are often exemplified in fiction; histories; and other interpretive, liberal art forms. In this worldview, the logic of knowledge is not to seek scientific closure (as with analysis), but to continue the conversation to continuously reframe meaning (see the table on the following page).

The impact of this wider philosophical scope is to give us pause to contemplating the world at work only through the simple-analytic paradigm. The simplification-through-analysis prism can become a psychic prison in how we interpret events in the world. Wars reflect complex social issues, principally not scientific ones. While the simple-analytic paradigm is seductive for those who want to understand such complexity, subjective-contextualizations may offer a deeper appreciation for the complexity at hand and signal that such complexity may not be understandable, at least in an analytic way. Getting back to the reality of work, how can we assess and use "contextualization" (a.k.a. storytelling) as an alternative method to analysis?

Storytelling Instead of Analysis

There have been some interesting qualitative studies done on this subject. One insightful study by York University Professor Patricia Bradshaw, published in her article, "Reframing Board-Staff Relations: Exploring the Governance Function Using a Storytelling Metaphor," in the 2002 4th

issue of *Nonprofit Management and Leadership*, indicates the following qualities may help judge whether a story is good:

- It describes a sequence of actions and experiences done or undergone by a certain number of people, whether real or imaginary.
- People are presented either in situations that change or as reacting to such changes.
- In turn, those changes reveal hidden aspects of the situation for thought, action, or both.
- This response to the new situation leads the story toward its conclusion.
- It deals with emotional and relational or expressive tasks (whereas simple-analytic models deal with calculative and systematic tasks).
- Power comes to those who tell the story if others believe the story or the definition of reality that the storyteller creates.
- Legitimacy in the act of storytelling comes from shaping the story to fit the needs of the particular audience.
- It appreciates the criteria of effectiveness that various stakeholders apply.
- It constructs a reality about the organization to influence follower perceptions and expectations.
- It involves artistry in deciding how cohesive and how loose the story needs to be.

By no means a silver-bullet, Bradshaw goes on to warn of the dangers of inappropriate contextualizations: the story may become hegemonic to the point it may become a taken-for-granted grand narrative of "how things are around here" (i.e., overly-institutionalized or inculcated), or the one who holds power may silence alternative perspectives and perhaps superior frames; hence, the organization may lose its strategic fit with the environment (because it fails to recognize compelling alternative meanings).

A Storytelling Example

Is there an example in DoD of good storytelling? Indeed, the Marines have employed subjective-contextualization in writing doctrine to quite effectively communicate complexity. For example, the 1996 Marine Corps Doctrinal Publication 6, Command and Control, starts off its first chapter with a short story that offers a word picture of command and control in action (done well and done poorly) and illustrates various key points that appear in the text. The chapter can be read separately or in conjunction with the rest of the text. Chapter 1 works from the assumption that in order to develop an effective philosophy of command and control, we must first come to a realistic appreciation for the nature of the process and its related problems and opportunities.

Note the use of the terms "short story," "word picture," "philosophy," and "appreciation." Chapter 1 of that publication is indeed a short story, richly describing the fictional characters and events in novel combat situations where higher-level headquarters have completely different contexts of unfold-

## Differences in Philosophical Orientations

Philosophical Orientations	Ontological Assumptions	Epistemological Assumptions
Simple-Analytic Paradigm	Reality is independent of man. The world is made up of elements, components, ingredients, and so forth that when added together make up the reality we are in. Finding sameness is highly valued. "I'll believe it when I see it."	Knowledge is associated with "context-free" principles, axioms, laws, and so on; all knowledge is based in natural sciences epistemology and progress is objective (value-free) development of that knowledge. The key to understanding the world is through analysis (breaking up the world into its parts and seeing how they work). Focus of knowledge is on causality (intended consequences, interventions, technology, etc.)
Subjective-Contextualization Paradigm	Reality can be both physical and metaphysical. The world is a holistic system of interactivities that are linked and inseparable. Discovering uniqueness is highly valued. "I'll see it when I believe it," or "This just feels right."	Context-free knowledge is implausible (i.e., knowledge is contextual and highly descriptive); like language, knowledge is socially constructed and subject to multiple interpretations; while there may be an objective reality, there is also subjective reality (value-laden); the liberal arts and other interpretive methods are also required to appreciate complexity; hence, knowledge is always in flux and transformation. We can find ways to appreciate these interactivities through various levels of evaluation; yet, at the same time, we admit we cannot predict how things will turn out. Focus of knowledge is on aesthetic qualities.

GREAT MOMENTS IN ACQUISITION HISTORY

By Dan Ward, Chris Quaid, Gabe Mounce, and Jim Elmore

> WOULD YOU GUYS MIND TERRIBLY MOVING OVER THERE? OUR CANNON DOESN'T SWIVEL.

REQUESTED ENEMY LOCATION
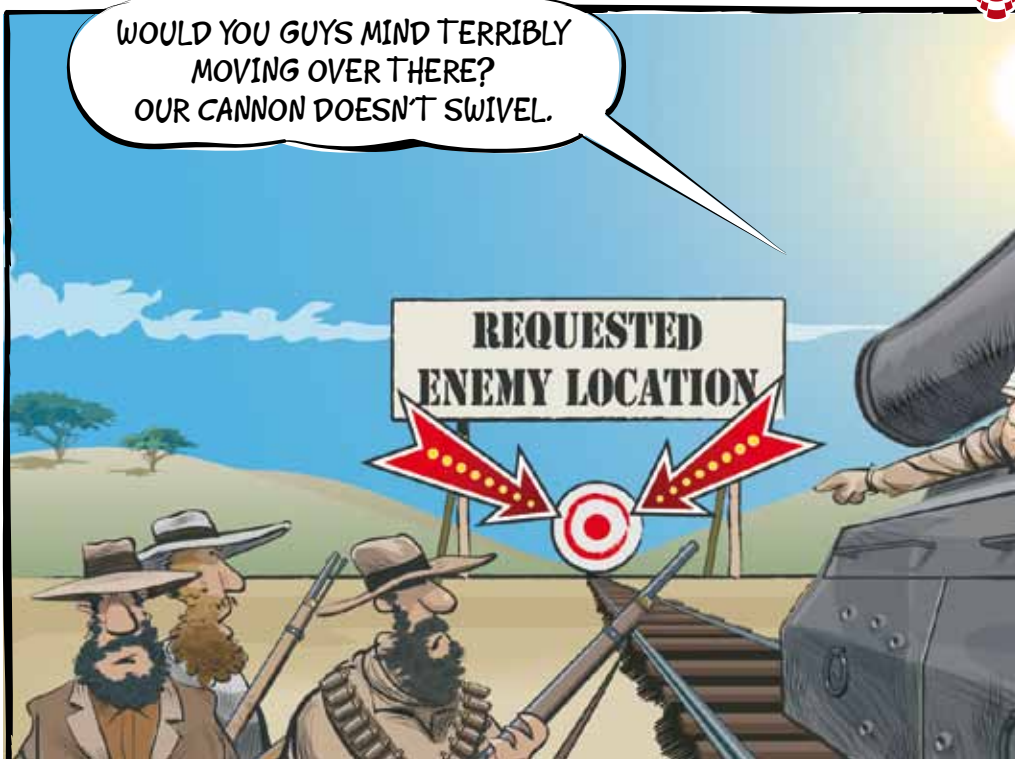
1882: L-1 Combat Locomotive operators discover the importance of OT&E

The Marines demonstrate that they are good storytellers and are able to explain their sophisticated concept of command and control through the use of fictional accounts.

When simplicity becomes too difficult to describe and analysis distorts the complexity at hand, there is an alternative paradigm. Here are some suggestions to contemplate:

• Instead of a formal briefing, tell a compelling, interesting story (fiction is okay!).

• Realize that an unemotional analytical argument may be less compelling and interesting than artful rhetoric.

• Instead of breaking a situation down (defining the problem), describe the situation with the goal of enhancing appreciation.

ing events. Here is a telling excerpt from the 32-page narrative that comprises Chapter 1, where a Marine platoon took action in the absence of any specific orders to do so:

Takashima called it "a world of hurt for the bad guys." Damn if those bastards didn't walk right into it, he thought as he scampered forward to get a better look at the situation at the crossroads where first platoon had just sprung an ambush on the leading elements of the enemy column. I owe Knutsen a beer when this is all over. He couldn't explain how he knew, but just from the sound of things he could tell that first platoon had caught them pretty good. ... Thank goodness for staff officers, pilots, and subordinate commanders who exercise initiative and quickly adapt to changing situations.

• When storytelling, try to avoid using the verb "to be" and any of its conjugations; this will help you avoid analytical categorizations.

• Think of leadership as storytelling—you are creating context when thought-leading.

• Think that to manage includes the "management of meaning."

• Use collaborative style contextualizations, where others (especially members of other cultures) add to the sensemaking, especially under very complex conditions.

• Hire a few liberal or fine arts majors to complement your stable of analysts.

Simply stated (and perhaps complicated to do), a healthy combination of simple-analytic and subjective-conceptualization philosophies may offer defense professionals (and their bosses) an enhanced worldview.

Why is making things simpler so difficult?

The author welcomes comments and questions and can be contacted at christopher.paparone@us.army.mil.

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Expand Your Network
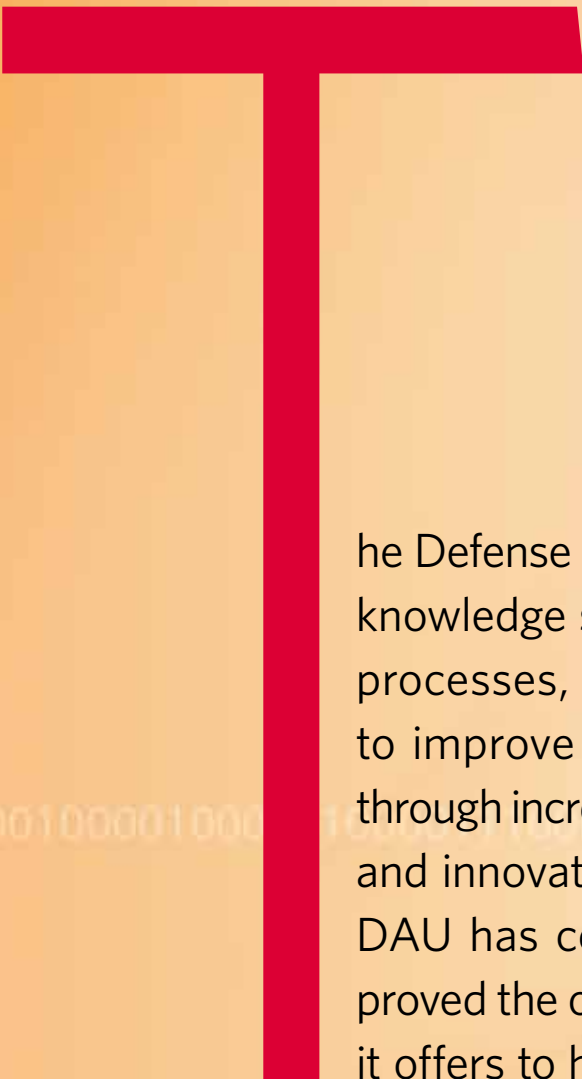https://acc.dau.mil

The Tools are Out There

DAU's Knowledge Sharing Capabilities

Andrea Reese ■ *Carol Scheina*

The Defense Acquisition University defines knowledge sharing as combining people, processes, and information technology to improve organizational performance through increased efficiency, effectiveness, and innovation. Over the past few years, DAU has continually reviewed and improved the online knowledge sharing tools it offers to help the acquisition workforce more efficiently locate the information they need to perform their duties.

In 2009, DAU began creating and enhancing a set of online knowledge-sharing tools to support defense acquisition professionals. It began with ACQuipedia, an online encyclopedia that defines acquisition topics and serves as a gateway to the most relevant policy, formal courses, communities of practice, Ask A Professor questions and answers, best practices, video, and other assets.

Reese *is a knowledge project officer for DAU where she manages development of performance learning tools, including the Program Managers e-Tool Kit, the online Defense Acquisition Guidebook, and the online Integrated Life Cycle Management Chart.* **Scheina** *is the managing editor for* Defense AT&L.

on a topic will send you directly to that page in the handbook. Table of contents topics are available in the left-hand menu, and you can also use clearly labeled navigation buttons to view each individual page in the handbook.

"I am a digital immigrant who prefers hard copies of what I read and a linear format to reading through information. Having said that, I found the interactive Tool Kit to be very user-friendly," said one user. "I didn't spend a great deal of time exploring, but the implementation of the Tool Kit provides a lot of information. If one is looking for something specific, the table of contents allows the researcher to start branching in the right direction. If one is not looking for something specific, the Tool Kit invites a curious pilgrim many directions in which to start looking and to stumble on interesting information."

DAU went on to Web-enable essential acquisition guidebooks and charts, including the Program Manager's e-Tool Kit, the Defense Acquisition Guidebook, the Integrated Defense AT&L Life Cycle Management Chart, and the Contract Pricing Reference Guides soon to be launched. Several of those resources link back exhaustively to ACQuipedia articles, giving users one-stop information on key acquisition terms. DAU also introduced a new knowledge sharing system, the Defense Acquisition Portal, which provides easy access to those and other already-established and popular online tools. This article discusses the new tools available and how the enhancements benefit acquisition workforce members.

Program Managers e-Tool Kit
For more than 10 years, DAU has been printing the Program Managers Tool Kit, a popular handbook that outlines tips and best practices in acquisition management, leadership, and problem solving. Due to the high costs of printing, the Tool Kit was updated in 18- to 24-month intervals. As a result, some references in the book became obsolete before a new version was printed, and updated content couldn't be added to the handbook for months—sometimes years. Furthermore, the print format limited the amount and type of content the Tool Kit could provide to the workforce, as information had to be tailored to fit on a limited number of size-constrained pages and users had to search manually for any references in the text.

In 2009, DAU decided to convert the Tool Kit into a Web version, which resides at <https://pmtoolkit.dau.mil>. The e-Tool Kit is easily updateable, and key text and diagrams now link directly to cited policy, related communities of practice, and comprehensive ACQuipedia articles.

When you visit the e-Tool Kit, you'll encounter a table of contents listing all information in the handbook, and clicking

Defense Acquisition Guidebook
Like the Program Managers e-Tool Kit, the Defense Acquisition Guidebook (DAG) began as a print product. In 2002, DAU put the Guidebook online to facilitate user access and content updates. Recently, DAU redesigned the DAG Web site, located at <https://dag.dau.mil>, to give the acquisition workforce new ways to access valuable information such as guidance for implementing policy changes in DoD Instruction 5000.02 and information on implementing policy changes in the Weapon Systems Acquisition Reform Act of 2009.

The redesigned DAG also provides several other new features:
- A revised structure that improves readability and allows users to view more than one paragraph at a time.
- A more precise search feature that allows users to narrow initial results to the most relevant topics.
- A Defense Acquisition Portal Quick Links feature that places a wide array of tools at the user's fingertips. These include the Defense Acquisition Portal; DAU's home page, where available courses can be viewed and scheduled; the Program Manager's e-Tool Kit; the DAU-hosted ACQuipedia, with articles on many key acquisition topics; and a Best Practices site, featuring access to proven best practices on an array of subjects.
- A "Browse Topic Tags" feature that lets users see what topics others have "tagged" DAG content with, with links to the content itself. The more often a tag is used, the larger and bolder that tag's font becomes.

Also like the e-Tool Kit, table of contents topics are available in the left-hand menu, and you can also use clearly labeled navigation buttons to view each page in the guidebook, providing enhanced navigation capabilities and also allowing users to bookmark individual pages.

"Love the general simplification of the site," commented one user. "The rest of the changes make sense with respect to ease of finding and reading content."

Integrated Defense AT&L Life Cycle Management Chart

The printed version of the Integrated Defense AT&L Life Cycle Management Chart, also known as the "wall chart," existed for many years before DAU put the chart online in 2003. The six-square-foot chart posed a challenge to put online in readable format. DAU came up with the innovative idea of allowing users to click on various sections of the chart to zoom in on content. In addition, the chart website provided on-demand articles to further inform the workforce about the various chart components.

With the release of new acquisition policy in DoDD 5000.01 and DoDI 5000.02, DAU decided not to just update the chart, but also to update its capabilities. The new chart highlights "zoom-able" segments as you roll over them and lets you navigate among large segments using arrows or a dynamic mini-map that also tracks where you are located in the chart. Streamlined phase and process views help you navigate specific stages or career areas of the acquisition process with ease. In addition to this new intuitive interface, the chart now links hundreds of acquisition process components to official guidance, directives, and other resources. The chart can be found at <https://acc.dau.mil/ifc/>.

Contract Pricing Reference Guides

DAU's latest knowledge sharing effort involves the Contract Pricing Reference Guides, which are a set of five reference volumes maintained by the Office of the Deputy Director of Defense Procurement and Acquisition Policy for Cost, Pricing, and Finance to "provide instruction and professional guidance for contracting personnel [*using*] detailed discussion and examples applying pricing policies to pricing problems" (<www.acq.osd.mil/dpap/cpf/contract_pricing_reference_guides.html>). The guides have been available online in PDF format, with basic hyperlinking and intra-document search features.

Recently, due to Government Accountability Office reports of contract pricing issues, interest in contract pricing has increased. Accordingly, DPAP is working with DAU to build a more robust, interactive online version of the guides to help sharpen pricing skills and to support repeatable success. Near the end of summer 2010, DAU will release a Web-based version that makes the guides searchable, linkable, and available from any Internet connection. Links to policy and authoritative guidance will further enrich the tool. Many of the navigation capabilities that have made knowledge sharing tools like the e-Tool Kit and the DAG accessible will also support the guides. The end result will be an easy-to-use tool better aligned to the contracting workforce's needs.

Defense Acquisition Portal

The Defense Acquisition Portal (DAP) unites all the tools discussed along with other essential instructions, directives, manuals, and guidebooks in a single site at <https://dap.dau.mil>. Deployed in July 2009, the DAP is a one-stop source for acquisition information and tools, replacing the AT&L Knowledge Sharing System. On the DAP, you can find information on all phases of the acquisition process, requirements generation, budget development, and more. The DAP also provides links to all of DAU's knowledge sharing systems—such as the DoD Best Practices Clearinghouse, the Acquisition Community Connection, and the DAU home page.

The DAP provides information specific to the acquisition workforce such as career management, career planning, leadership training, and human capital initiatives as well as information about the 4th estate. It also offers acquisition career gateways, which includes career certification guides, course enrollment procedures, continuous learning and job-specific courses, and blogs by career field experts on each of the 12 acquisition career fields. Since being deployed, the DAP has had more than 110 million page views.

The Tools Are Out There

Acquisition professionals need quick and easy access to an abundance of information that is kept current as policies change. DAU recognizes the challenges the workforce faces, and the university's knowledge sharing tools stand ready to help you perform their job with dynamic search tools and updated reference materials. Numerous users have commented on the simplification of DAU's tools and how information is easier to read and find, and the university continues to seek opportunities to get the right information to the workforce at the point of need.
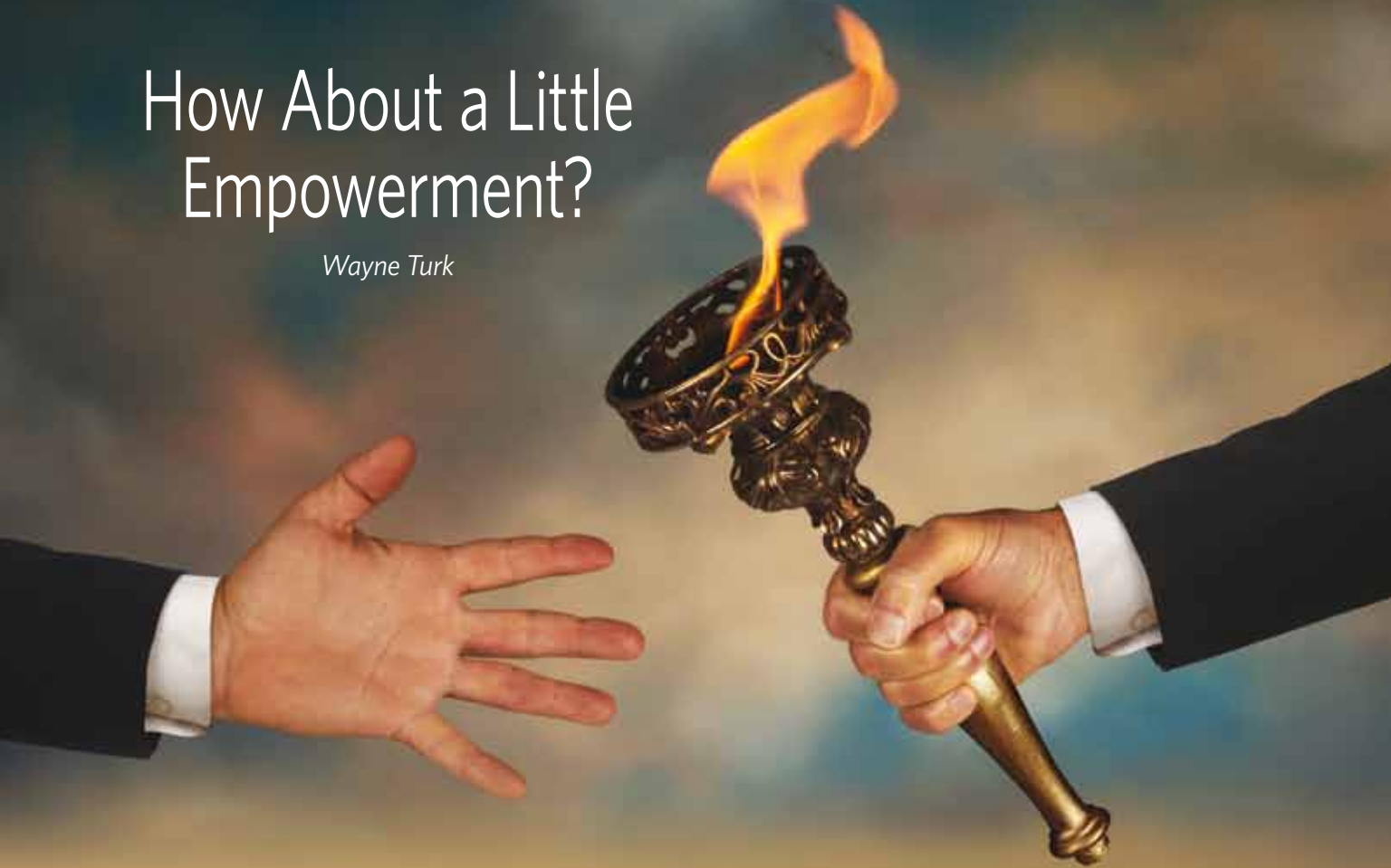
You can view short videos and get additional details on all elements of DAU's knowledge sharing tools at <https://acc.dau.mil/at&lkm>.

The authors welcome comments and questions and can be contacted at andrea.reese@dau.mil.

How About a Little Empowerment?

Wayne Turk

E mpowerment is the process of enabling or authorizing an individual to think, behave, act, control his work, and make decisions in autonomous ways. It is the state of feeling self-empowered to take control of one's own destiny in the work environment. Or, as Stephen Covey, author of *The 7 Habits of Highly Effective People*, puts it, "An empowered organization is one in which individuals have the knowledge, skill, desire, and opportunity to personally succeed in a way that leads to collective organizational success."

Empowerment has been a big topic in modern day management literature. There are articles on top of articles on top of books written about it. It seems everyone has his or her own steps to take to empower your employees. Naturally, I will do the same in this article, but first, we need to look at what empowerment really is and what it does for you and your subordinates.

Turk *is an independent management consultant. A retired Air Force lieutenant colonel and defense contractor, and the author of* Common Sense Project Management *(ASQ Press, 2008), he is a frequent contributor to* Defense AT&L.

Delegation is Key

Empowerment is directly related to delegation, as I pointed out in "Effective Delegation: A Win-Win Strategy" (*Defense AT&L*, September-October 2009). In fact, if you look in a thesaurus under "delegate," you may find "empower" as a synonym and vice versa. When you delegate, you empower, but empowerment as I am using the term involves more. Empowerment is giving your subordinates the flexibility and capability to make independent decisions and take actions on their own responsibility within certain boundaries. It is a tacit agreement as to what they can (and can't) do without having to come to you, the manager, for approval. The agreement may involve verbal permission or it may be laid out in a policies and procedures manual (or some other written document).

A Manual for Guidance

I recommend creating some kind of a written document outlining policies and procedures. Such a written document is essentially a contract giving employees written permission to take actions or make decisions, and it sets the boundaries for those decisions. A policies and procedures manual provides the written guidelines for empowering employees to independently make decisions and/or take action without the need or time delay of involving management and without fear of being second-guessed or punished for their actions. It also sets out the procedures (or process) for some or all jobs.

A properly developed manual should provide both organizational policies and the appropriate procedures for implementation of the policy. If employees know the policies, procedures, and boundaries, then they will feel confident in making decisions or taking appropriate actions.

Employee empowerment is a challenge for many managers. It involves taking a risk and giving up a degree of control and hands-on supervision. But not allowing subordinates to make decisions or take action when appropriate is an even bigger problem. Organizations need people who can think quickly and who can confidently take action on their own initiative. This is true in both government and industry.

Some Benefits

One of the most visible benefits of empowerment is improved customer service and higher customer satisfaction. Higher customer satisfaction means repeat customers, more business, and higher profits for companies. While profits aren't a government prerogative, for most agencies, customer satisfaction and repeat business is desirable, especially in the acquisition world. Empowerment means that lower-level employees can make decisions while working with the customer. That makes for happy customers, which makes for repeat business and word-of-mouth advertising. Word-of-mouth advertising is powerful, credible, and incredibly inexpensive. Well-treated customers come back again, and they bring their friends; the opposite is true when they are unhappy. Sometimes they do more than not come back; they blog about their experiences or they talk to the media. While repeat business and profits are much more applicable to non-government entities, satisfied customers and a good reputation should be important to all, including government organizations.

For example, I recently bought a new cell phone and changed my billing plan. I had done some of the process online, but I had to go into the store to get the new phone and switch the number from my old phone (which, by the way, did not make me happy). I had read online that there was a fee for activating the new phone. When I got to the store, the clerk's computer showed that the activation fee was $8 higher. I explained online showed a different price. After a short discussion, he immediately gave me the lower price. He had the authority to do that. Eight dollars didn't really affect their bottom line, and it made me a happier customer. Examples like that abound, as do the opposite kind of examples in which employees can't make a decision or action without going to the boss first.

The government has researched the benefits of empowering employees. In a 2005 review of 100 workplace studies, the U.S. Department of Labor examined the link between progressive employment practices and improved bottom line results. The Department of Labor found that a positive correlation exists between motivating and empowering employees and significant improvements in productivity, employee satisfaction, and financial performance.

Empowerment is a motivating factor for employees. And motivated employees make for lower turnover and higher productivity. Both lower employee turnover and higher productivity, like higher customer satisfaction, have a positive effect on the organization and its reputation.

A final plus is that empowerment makes your managerial job easier. You don't have to jump in and make decisions for your employees. You don't have to tell them what to do in certain situations. They have been empowered.
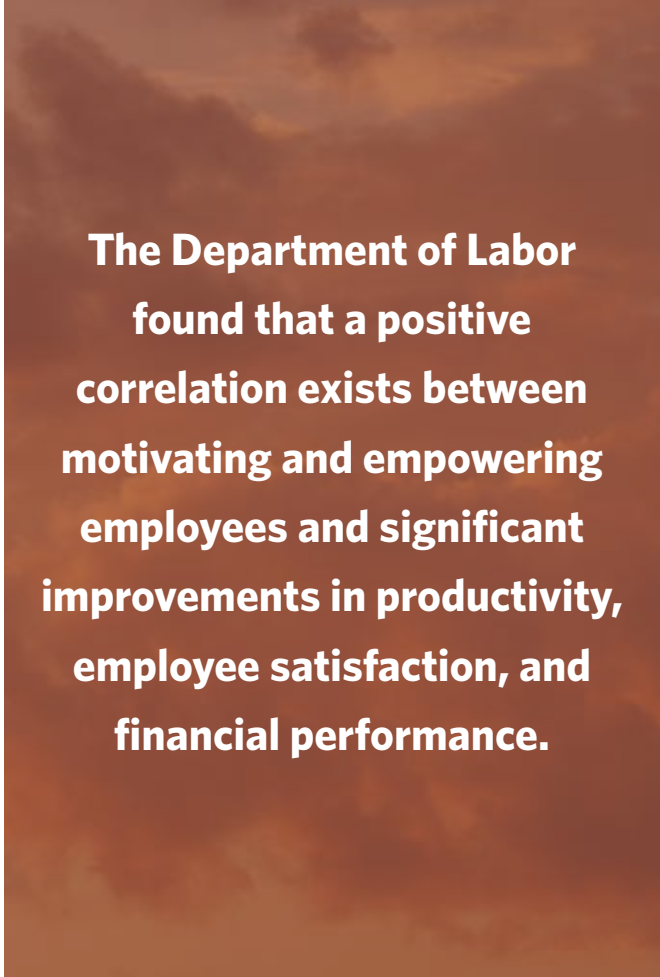
Overall, the more decisions your employees can make, the more productive everyone will be. As the manager, you have more time to focus on management initiatives rather than the day-to-day minutia. Your empowered employees will demonstrate a stronger work ethic and hold themselves more accountable. Because they feel a part of the organization, they make smart decisions to advance the organization's goals and mission. But perhaps the biggest benefit of having empowered employees is the loyalty they show. Employees who are empowered feel respected and valued and are dedicated to making a positive impact.

Steps Toward Empowerment

Here are some suggested steps for empowering your employees.

Communicate

Communicate clearly what your employees are expected to do, what they are allowed to do, the limits, the expected results, and the organization's mission and goals. Most of that should be in the policies and procedures manual. If you don't have one, make that a project. Ensure employees understand their role. Ask questions and ask for employees' suggestions/input. Listen to what they have to say. Good communication is the cornerstone of good management.

The Department of Labor found that a positive correlation exists between motivating and empowering employees and significant improvements in productivity, employee satisfaction, and financial performance.

Demonstrate That You Trust and Value People

Your regard for people is visible in your actions and words. Your facial expressions, your body language, and your words express what you are thinking about the people you manage. You want to demonstrate your appreciation for each person's unique value. Trust the intentions of people to do the right thing; make the right decision; and make choices that, while maybe not exactly what you would decide, still work.

Recognize and Reward Your People

Everyone wants to feel appreciated. When people feel truly appreciated, they are eager to take on more responsibilities and they want the organization to succeed. Make it a habit to thank people, even for small milestones. The thank you could be a simple handwritten note or a big party for a job well done. Also, give rewards when appropriate. The rewards can be tangible or intangible. Find out what types of rewards best motivate your people and dole them out freely for good work and success.

Back Off

Don't micromanage your people. When they know their jobs, you don't want to be looking over their shoulders all of the time. Micromanaging may make you feel that you are on top of things, but what you really do is promote negativity and lost creativity in the workplace. You prove your distrust in the employee when you micromanage. Soon, employees lose interest because you are really doing their job for them. Their morale can go down, they could quit trying, or they could get angry.

Support Your Employees

Don't second-guess your employees. Providing them support is related to demonstrating trust. Show them that you support their decisions. Or, if they make a decision that you don't support, use it as a learning experience, but don't denigrate them. Always listen to your employees and take the time to understand why they did what they did. Too many employees say their decisions and actions are continuously second-guessed and that most of the feedback they receive is negative. Allow them to make mistakes as a form of learning. Show that it is really OK to make mistakes. Of course, too many mistakes are bad for everyone, but that is a different part of managing and training your people. Let them know you really support their decisions.

Solve Problems, Don't Assess Guilt

On a related note to support, you must also help everyone learn from a problem situation. When a problem occurs (and it will at some point), ask what is wrong with the system that caused the people to fail, not what is wrong with the people. Always seek to identify and solve the problem, not to identify and punish the guilty. Share the answer with all of your employees, when appropriate. It might save someone else from making a mistake.

Show Commitment

Stay committed to your word, your principles, and most of all, your people. Empowerment should be constant, not a one-time or once-a-year deal. It should be an ongoing process and promise to your employees. Staying committed will give your employees more confidence and security in what they do, leading to better work on their part.

Now, go out and empower your people. Do it in a smart and effective way. Take the ideas and guidelines here and put them into practice. It will be good for all.

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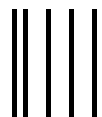Are there any other comments you'd like to provide?

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https://acquipedia.dau.mil
Online encyclopedia that provides the acquisition workforce with quick access to information on common acquisition topics.

Acquisition Central
http://acquisition.gov
Shared systems and tools to support the federal acquisition community and business partners.

Acquisition Community Connection
http://acc.dau.mil
Policies, procedures, tools, references, publications, Web links, and lessons learned for risk management, contracting, system engineering, TOC.

Aging Systems Sustainment and Enabling Technologies
http://asset.okstate.edu
Government-academic-industry partnership. ASSET program-developed technologies and processes expand the DoD supply base, reduce time and cost of parts procurement, enhance military readiness.

Air Force (Acquisition)
www.safaq.hq.af.mil
Policy; career development and training opportunities; reducing TOC; library; links.

Air Force Institute of Technology
www.afit.edu
Graduate degree programs and certificates in engineering and management; Civilian Institution; Center for Systems Engineering; Centers of Excellence; distance learning.

Air Force Materiel Command Contracting Laboratory's FARSite
http://farsite.hill.af.mil
FAR search tool; *Commerce Business Daily* announcements (CBDNet); *Federal Register*; electronic forms library.

Army Acquisition Support Center
http://asc.army.mil
News; policy; *Army AL&T* Magazine; programs; career information; events; training opportunities.

Army Training Requirements and Resources System
https://www.atrrs.army.mil
Army system of record for managing training requirements.

Assistant Secretary of the Army (Acquisition, Logistics & Technology)
https://www.alt.army.mil
ACAT Listing; ASA(ALT) Bulletin; digital documents library; links to other Army acquisition sites.

Association for the Advancement of Cost Engineering International
www.aacei.org
Planning and management of cost and schedules; online technical library; bookstore; technical development; distance learning.

Association of Old Crows
https://www.myaoc.org
News; conventions, courses; *Journal of Electronic Defense*.

Association of Procurement Technical Assistance Centers
www.aptac-us.org
PTACs nationwide assist businesses with government contracting issues.

Best Practices Clearinghouse
https://bpch.dau.mil
The authoritative source for acquisition best practices in DoD and industry. Connects communities of practice, centers of excellence, academic and industry sources, and practitioners.

Central Contractor Registry
http://www.ccr.gov
Registration for businesses wishing to do business with the federal government under a FAR-based contract.

Committee for Purchase from People Who are Blind or Severely Disabled
www.abilityone.gov
Information and guidance to federal customers on the requirements of the Javits-Wagner-O'Day (JWOD) Act.

Defense Acquisition Portal
https://dap.dau.mil
One-stop source for acquisition information and tools.

Defense Acquisition University and Defense Systems Management College
www.dau.mil
DAU iCatalog; DAU/DSMC course schedules; educational resources; and *Defense AT&L* magazine and *Defense Acquisition Review Journal.*

DAU Alumni Association
www.dauaa.org
Acquisition tools and resources; links; career opportunities; member forums.

Defense Advanced Research Projects Agency
www.darpa.mil
News releases; current solicitations; *Doing Business with DARPA.*

Defense Information Systems Agency
www.disa.mil
Defense Information System Network; Defense Message System; Global Command and Control System.

Defense Modeling and Simulation Coordination Office
http://www.msco.mil
DoD modeling and simulation master plan; document library; events; services.

Defense Spectrum Organization
http://www.disa.mil/dso/
Operational spectrum management support to the Joint Staff and COCOMs; conducts R&D into spectrum-efficient technologies.

Defense Technical Information Center
www.dtic.mil
DTIC's scientific and technical information network (STINET) is one of DoD's largest available repositories of scientific, research, and engineering information. Hosts over 100 DoD Web sites.

Department of Commerce, Defense Priorities and Allocations System
www.bis.doc.gov/dpas
DPAS regulation, policies, procedures, and training resources.

Deputy Chief Management Officer
http://www.defenselink.mil/dcmo/index.html
Information on the Defense Business Transformation Agency and the DoD Performance Improvement Officer.

Deputy Under Secretary of Defense for Acquisition and Technology
www.acq.osd.mil/at
Acquisition and technology organization, goals, initiatives, and upcoming events.

Director, Defense Procurement and Acquisition Policy
www.acq.osd.mil/dpap
Procurement and acquisition policy news and events; reference library; acquisition education and training policy, guidance.

DoD Defense Standardization Program
www.dsp.dla.mil
DoD standardization; points of contact; FAQs; military specifications and standards; newsletters; training; nongovernment standards; links.

DoD Enterprise Software Initiative
www.esi.mil
Joint project to implement true software enterprise management process within DoD.

DoD Inspector General Publications
http://www.dodig.mil/PUBS/index.html
Audit and evaluation reports; IG testimony; planned and ongoing audit projects of interest to the AT&L community.

DoD Office of Technology Transition
www.acq.osd.mil/ott
Information about and links to OTT's programs.

DoD Systems Engineering
http://www.acq.osd.mil/sse
Policies, guides and information on SE and related topics, including developmental T&E and acquisition program support.

Earned Value Management
www.acq.osd.mil/pm
Implementation of EVM; latest policy changes; standards; international developments.

Electronic Industries Alliance
www.eia.org
Government relations department; links to issues councils; market research assistance.

FAIR Institute
http://www.thefairinstitute.org
Organization that promotes a federal acquisition system that continually innovates, exceeds world class standards of performance, and ensures the prudent use of taxpayer dollars.

Federal Acquisition Institute
www.fai.gov
Virtual campus for learning opportunities; information access and performance support.

Federal Acquisition Jumpstation
http://prod.nais.nasa.gov/pub/fedproc/home.html
Procurement and acquisition servers by contracting activity; CBDNet; reference library.

Federal Aviation Administration
http://fast.faa.gov
Online policy and guidance for all aspects of the acquisition process.

Federal Business Opportunities
www.fedbizopps.gov
Single government point-of-entry for federal government procurement opportunities over $25,000.

Federal R&D Project Summaries
http://www.osti.gov/fedrnd
Portal to information on federal research projects; search databases at different agencies.

Acquisition & Logistics Excellence

An Internet Listing Tailored to the Professional Acquisition Workforce

Surfing the Net

Fedworld Information
www.fedworld.gov
Central access point for searching, locating, ordering, and acquiring government and business information.

Government Accountability Office
http://gao.gov
GAO reports;policy and guidance; FAQs.

General Services Administration
www.gsa.gov
Online shopping for commercial items to support government interests.

Government-Industry Data Exchange Program
http://www.gidep.org
Federally funded co-op of government-industry participants, providing electronic forum to exchange technical information essential to life cycle development.

Integrated Dual-Use Commercial Companies
www.idcc.org
Information for technology-rich commercial companies on doing business with the federal government.

International Society of Logistics
www.sole.org
Online desk references that link to logistics problem-solving advice; Certified Professional Logistician certification.

International Test & Evaluation Association
www.itea.org
Professional association to further development and application of T&E policy and techniques to assess effectiveness, reliability, and safety of new and existing systems and products.

Joint Capability Technology Demonstrations
www.acq.osd.mil/jctd
JCTD's accomplishments, articles, speeches, guidelines, and POCs.

Joint Interoperability Test Command
http://jitc.fhu.disa.mil
Policies and procedures for interoperability certification; lessons learned; support.

Library of Congress
www.loc.gov
Research services; Copyright Office; FAQs.

MANPRINT (Manpower and Personnel Integration)
www.manprint.army.mil
Points of contact for program managers; relevant regulations; policy letters from the Army Acquisition Executive; briefings on the MANPRINT program.

NASA's Commercial Technology Office
http://technology.grc.nasa.gov
Promotes competitiveness of U.S. industry through commercial use of NASA technologies and expertise.

National Contract Management Association
www.ncmahq.org
Educational products catalog; publications; career center.

National Defense Industrial Association
www.ndia.org
Association news; events; government policy; *National Defense* magazine.

National Geospatial-Intelligence Agency
www.nima.mil
Imagery; maps and geodata; Freedom of Information Act resources; publications.

National Institute of Standards and Technology
http://www.nist.gov
Information about NIST technology, measurements, and standards programs, products, and services.

National Technical Information Service
www.ntis.gov
Online service for purchasing technical reports, computer products, videotapes, audiocassettes.

Naval Air Systems Command
www.navair.navy.mil
Provides advanced warfare technology through the efforts of a seamless, integrated, worldwide network of aviation technology experts.

Naval Research Laboratory
http://www.nrl.navy.mil
Navy and Marine Corps corporate research laboratory. Conducts scientific research, technology, and advanced development.

Naval Sea Systems Command
www.navsea.navy.mil
TOC; documentation and policy; reduction plan; implementation timeline; TOC reporting templates; FAQs.

Navy Research, Development, and Acquisition
http://acquisition.navy.mil/rda
Policy documents; career management; Acquisition One Source page, providing links to acquisition communities of practice.

Office of Naval Research
http://www.onr.navy.mil
News and announcements; publications and regulations; technical reports; doing business with the Navy.

Open Systems Joint Task Force
www.acq.osd.mil/osjtf
Open systems education and training opportunities; studies and assessments; projects, initiatives and plans; library.

Parts Standardization and Management Committee
www.dscc.dla.mil/programs/psmc
Collaborative effort between government and industry for parts management and standardization through commonality of parts and processes.

Performance-Based Logistics Toolkit
https://acc.dau.mil/pbltoolkit
Web-based 12-step process model for development, implementation, and management of PBL strategies.

Project Management Institute
http://www.pmi.org
Program management publications; information resources; professional practices; career certification.

Small Business Administration
www.sba.gov
Communications network for small businesses.

DoD Office of Small Business Programs
www.acq.osd.mil/osbp
Program and process information; current solicitations; Help Desk information.

Reliability Information Analysis Center
http://theRIAC.org
DoD-funded DTIC information analysis center; offers reliability, maintainability, quality, supportability, and interoperability support throughout the system life cycle.

Software Engineering Institute (SEI)
www.sei.cmu.edu
Advances software engineering principles and practices as well as computer security, and process improvements.

Software Program Managers Network
www.spmn.com
Supports project managers, software practitioners, and government contractors. Contains publications on highly effective software development best practices.

Space and Naval Warfare Systems Command
https://e-commerce.sscno.nmci.navy.mil
SPAWAR business opportunities; acquisition news; solicitations; small business information.

System of Systems Engineering Center of Excellence
www.sosece.org
Advances the development, evolution, practice, and application of the system of systems engineering discipline across individual and enterprise-wide systems.

Under Secretary of Defense for Acquisition, Technology and Logistics
www.acq.osd.mil
USD(AT&L) documents; streaming videos; links.

U.S. Coast Guard
www.uscg.mil
News and current events; services; points of contact; FAQs.

U.S. Department of Transportation Maritime Administration
www.marad.dot.gov
Information and guidance on the requirements for shipping cargo on U.S. flag vessels.

Links current at press time. To add a non-commercial defense acquisition/acquisition and logistics-related Web site to this list, or to update your current listing, please e-mail your request to datl(at)dau.mil. Your description may be edited and/or shortened. DAU encourages the reciprocal linking of its home page to other interested agencies. Contact: webmaster(at)dau.mil.

Defense AT&L **Writer's Guidelines in Brief**

Purpose

Defense AT&L is a bi-monthly magazine published by DAU Press, Defense Acquisition University, for senior military personnel, civilians, defense contractors, and defense industry professionals in program management and the acquisition, technology, and logistics workforce. The magazine provides information on policies, trends, events, and current thinking regarding program management and the acquisition, technology, and logistics workforce.

Submission Procedures

Submit articles by e-mail to datl(at)dau.mil or on disk to: DAU Press, ATTN: Carol Scheina, 9820 Belvoir Rd., Suite 3, Fort Belvoir VA 22060-5565. Submissions must include the author's name, mailing address, office phone number, e-mail address, and fax number.

Receipt of your submission will be acknowledged in five working days. You will be notified of our publication decision in two to three weeks.

Deadlines

Issue	Author Deadline
January-February	1 October
March-April	1 December
May-June	1 February
July-August	1 April
September-October	1 June
November-December	1 August

If the magazine fills before the author deadline, submissions are considered for the following issue.

Audience

Defense AT&L readers are mainly acquisition professionals serving in career positions covered by the Defense Acquisition Workforce Improvement Act (DAWIA) or industry equivalent.

Style

Defense AT&L prints feature stories focusing on real people and events. The magazine also seeks articles that reflect your experiences and observations rather than pages of researched information.

The magazine does not print academic papers; fact sheets; technical papers; white papers; or articles with footnotes, endnotes, or references. Manuscripts meeting any of those criteria are more suited to DAU's journal, *Acquisition Review Journal (ARJ)*.

Defense AT&L does not reprint from other publications. Please do not submit manuscripts that have appeared in print elsewhere. *Defense AT&L* does not publish endorsements of products for sale.

Length

Articles should be 1,500 – 2,500 words.

Format

Submissions should be sent via e-mail as a Microsoft® Word attachment.

Graphics

Do not embed photographs or charts in the manuscript. Digital files of photos or graphics should be sent as e-mail attachments or mailed on CDs (see address above). Each figure or chart must be saved as a separate file in the original software format in which it was created.

TIF or JPEG files must have a resolution of 300 pixels per inch; enhanced resolutions are not acceptable; images downloaded from the Web are not of adequate quality for reproduction. Detailed tables and charts are not accepted for publication because they will be illegible when reduced to fit at most one-third of a magazine page.

Non-Department of Defense photos and graphics are printed only with written permission from the source. It is the author's responsibility to obtain and submit permission with the article.

Author Information

Contact and biographical information will be included with each article selected for publication in *Defense AT&L*. Please include the following information with your submission: name, position title, department, institution, address, phone number, and e-mail address. Also, please supply a short biographical statement, not to exceed 25 words, in a separate file. We do not print author bio photographs.

Copyright

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Alternatively, you may submit a written release from the major command (normally the public affairs office) indicating the author is releasing the article to *Defense AT&L* for publication without restriction.

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